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VOL. CXXI.

AUGUST 18, 1934

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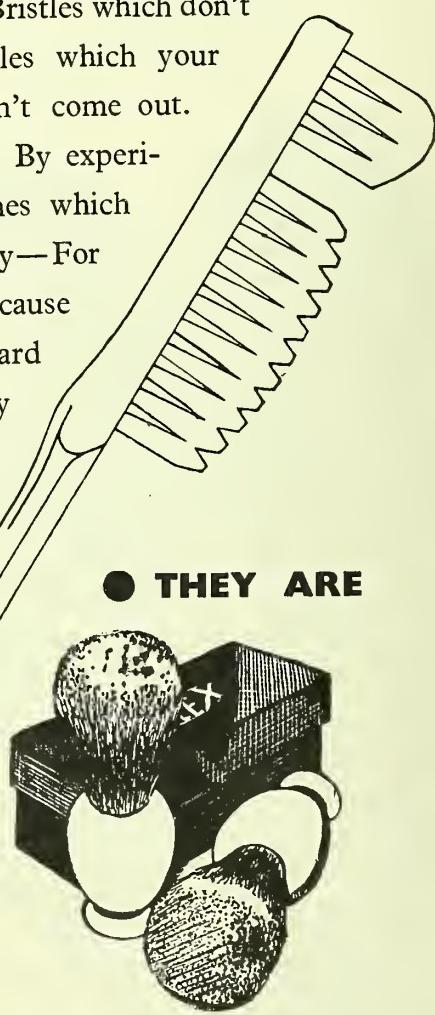
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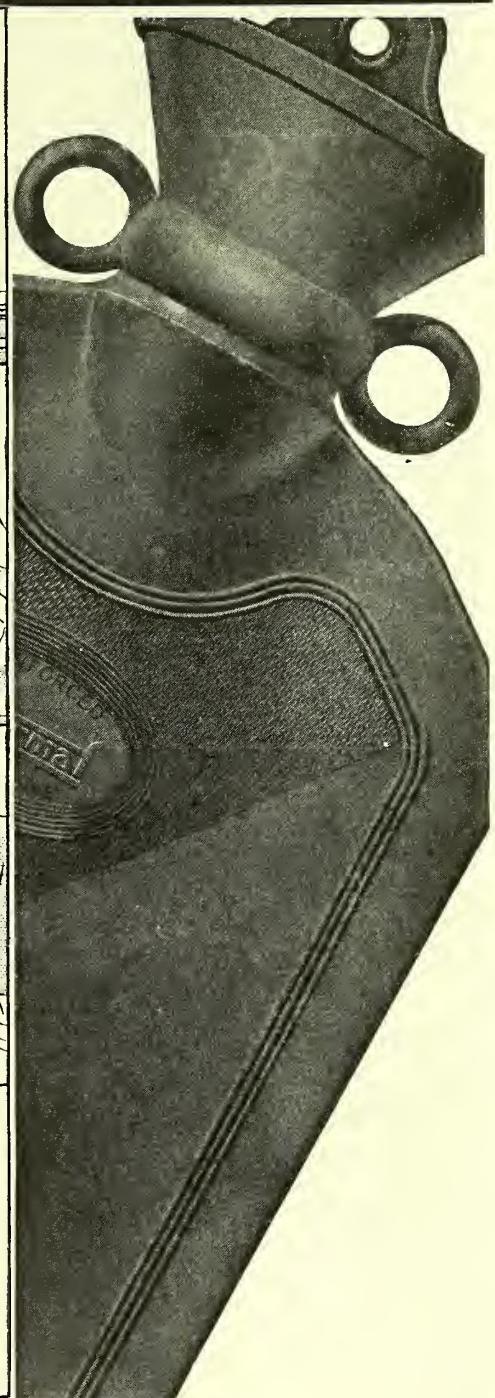
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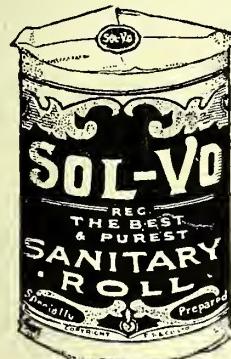
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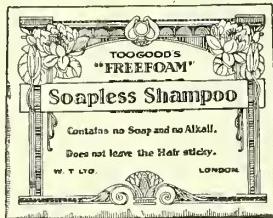
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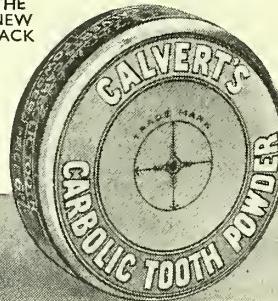
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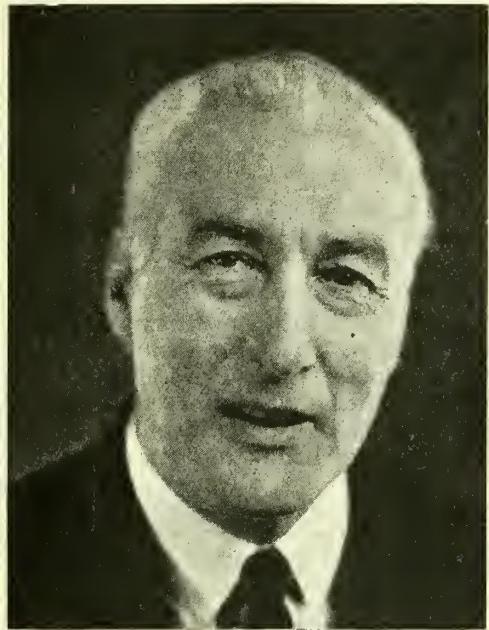
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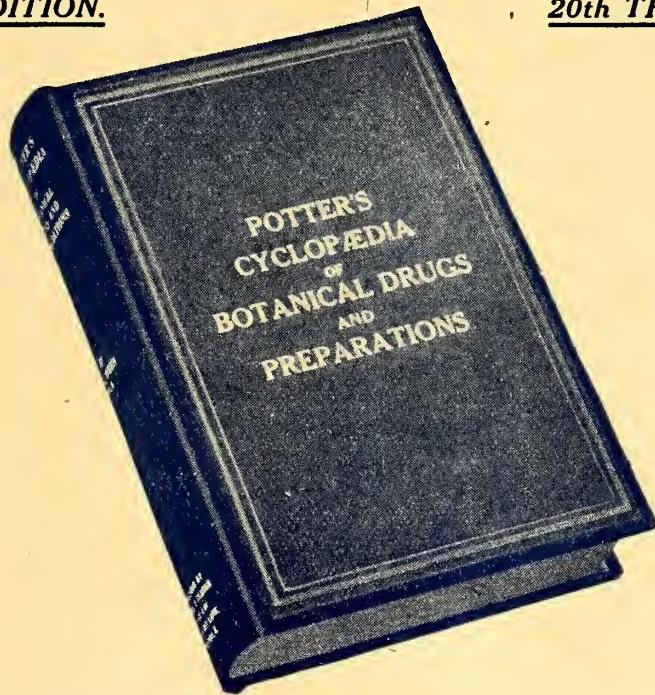
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SESSION 1934-35

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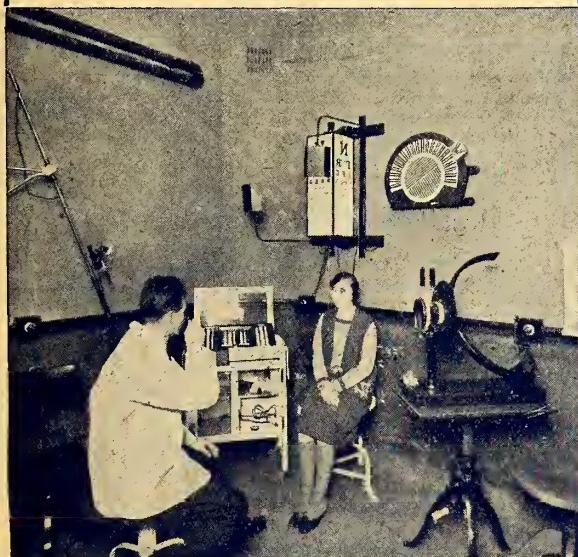
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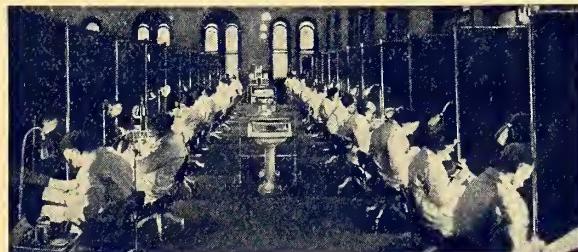
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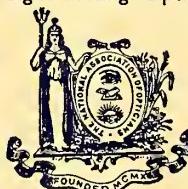
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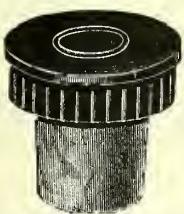
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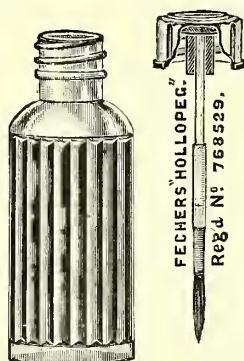
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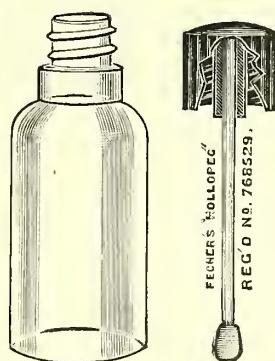
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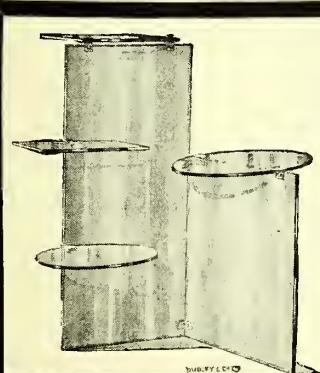
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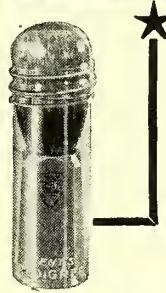
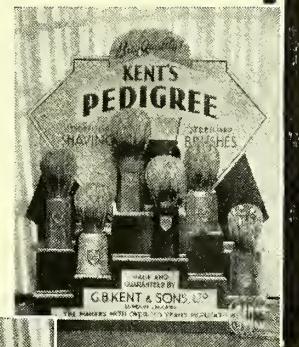
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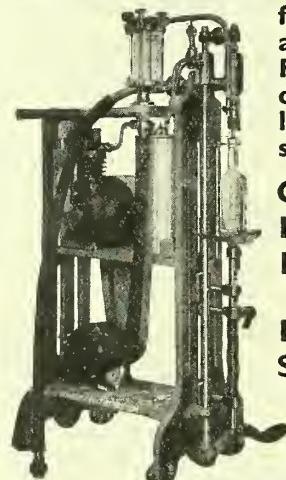
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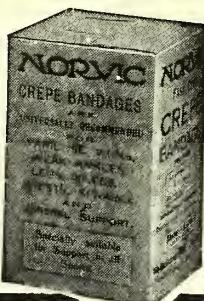
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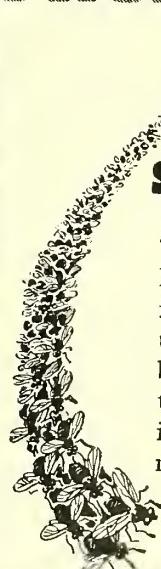
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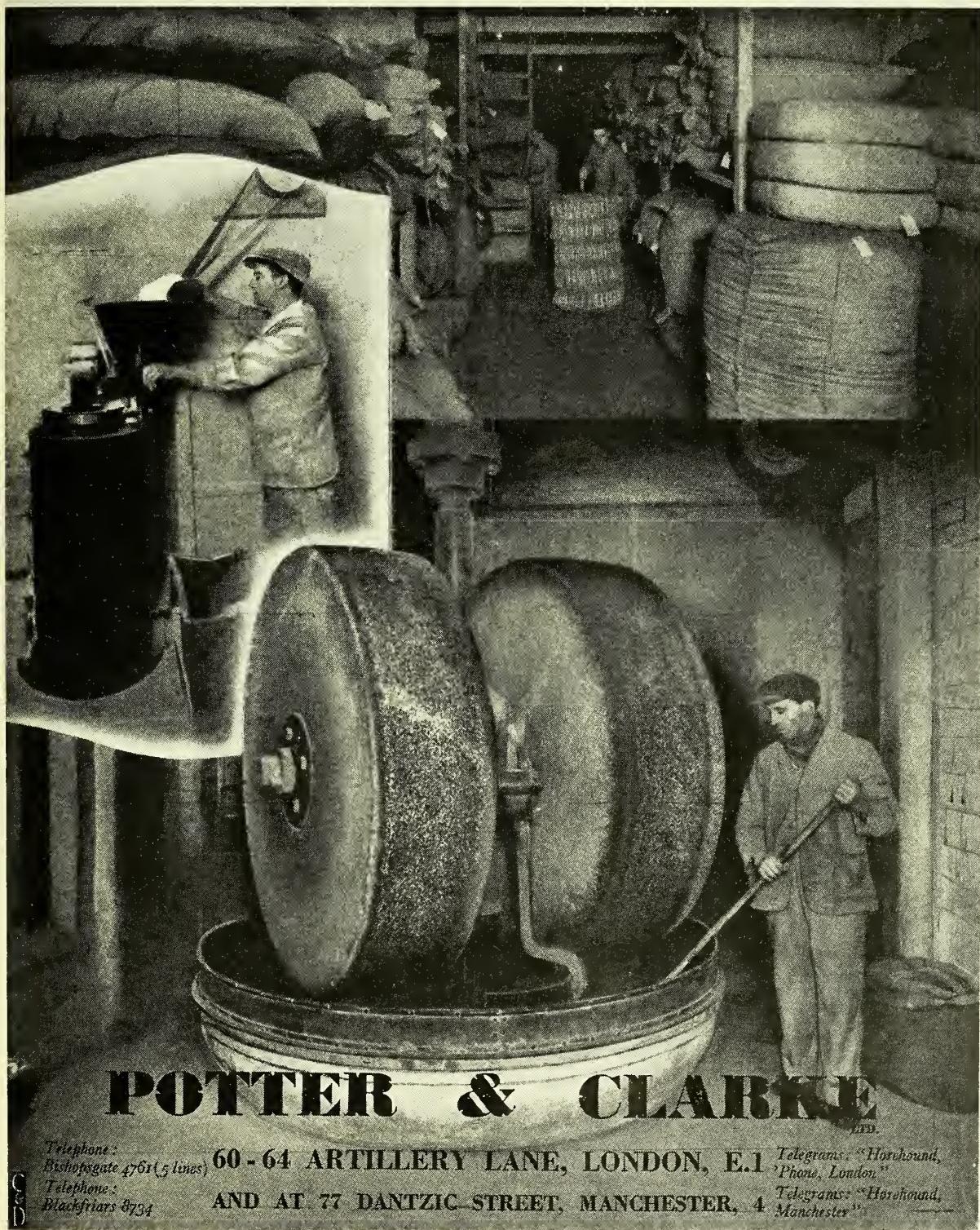
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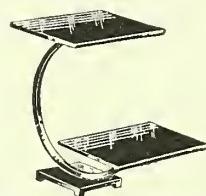
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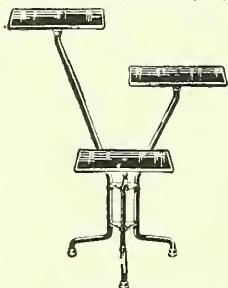
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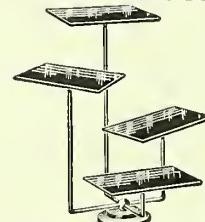
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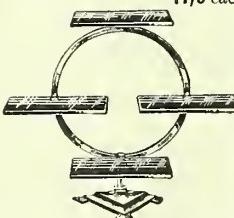


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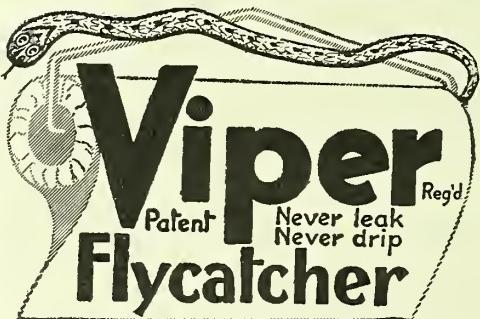
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News of the Week

Anglo-German Exchange Agreement

The Anglo-German Exchange Agreement was signed on August 10 and comes into force on August 20. Copies of the Agreement have been printed as a White Paper, and may be obtained from the Stationery Office or through any bookseller. The Agreement relates to debts falling due on or after August 20. The procedure to be followed is indicated in Article 1, which provides that German firms holding a general exchange permit under paragraph III, 3, and United Kingdom firms holding a general exchange permit under paragraph III, 5-8 of the German Exchange Regulations may, in so far as the sums in foreign exchange allotted are insufficient to pay for imports covered by the Agreement, make payment in Reichsmarks into a Special Account with the Reichsbank in respect of certain goods and subject to the general limit laid down in Article 2 of the Agreement. (General Exchange Permits do not cover certain goods subject to import licences, controlled raw materials and goods falling under the German Agricultural Monopolies.) The Treasury has requested the Bank of England to open a special account with the Reichsbank for the purpose of the Agreement; Reichsmarks will be sold for the account of the creditor concerned in chronological order of receipt into the special account. The Bank of England will sell such Reichsmarks at their discretion and subject to the provisions of Article 6 of the Agreement, and will credit the beneficiaries with the sterling proceeds less a charge of one-eighth per cent. (minimum 2s. 6d.). Payment to the beneficiary can only be made if and when the Reichsmarks are sold; no payment can be made to the bene-

ficiary in Reichsmarks. Neither His Majesty's Government nor the Bank of England can accept responsibility for any loss on account of differences in exchange rates or delay in payment, or for any other losses whatsoever directly or indirectly due to the use of the special account. The attention of those interested is particularly drawn to Article 8 of the Agreement, which reads:—

"Exchange losses or losses of interest arising in connection with payments through the Special Account may be made good to the creditor by subsequent payments into the Special Account by the German debtor, in cases where the debtor and creditor have agreed that this method of payment shall be used."

It is suggested that in making contracts with German importers traders should stipulate that any such losses must be made good by the German importers, and arrange to make use of the facilities afforded by this Article.

Shops Act, 1934

The text of the Shops Act, 1934, has been issued (price 4d.) by the Stationery Office. The Act provides that the normal maximum working hours for young persons shall eventually be forty-eight in any week, but this and other consequential provisions have been modified so that until December 27, 1936, the maximum number of working hours in any week will be fifty-two. On occasions of seasonal or exceptional pressure of work at any shop persons between the ages of sixteen and eighteen years may, however, be employed overtime within prescribed limits.

The provisions of the Act relating to the arrangements to be made for health and comfort of shop workers place new responsibilities upon traders which are independent of the employment of young persons. Section 10 requires that suitable and sufficient means of ventilation must be provided in the shop and a reasonable temperature maintained. Suitable and sufficient sanitary conveniences must be made available for the use of persons employed and adequate lighting provided. Assistants must be afforded washing facilities, and where persons who are employed take any meals in the shop, suitable facilities for taking such meals must be furnished. A certificate of the local authority will exempt a shop from the requirements as to sanitary conveniences and washing facilities if the authority can be satisfied that the restricted accommodation or other special circumstances will make it unreasonable to enforce these stipulations, and that such conveniences and facilities are otherwise conveniently available. Section 11 provides that expenses which have been incurred in securing that the requirements of the Act are observed in these respects are fairly apportioned where more than one person has an interest in the premises affected. If an occupier claims that the expense involved ought to be borne by another person having an interest in the premises, he may apply to the County Court for an order, and in apportioning the expense the Court may have regard to all the circumstances of the case, including the terms of contract between the parties, and may direct that any such contract shall cease to have effect so far as it is inconsistent with the terms of the Court's order.

Middlesbrough Chemists' Excursion

THE annual outing of the Middlesbrough and District Pharmacists' Association took place on August 9, when a party journeyed by bus into co. Durham. The "Meeting of the Waters" near Greta Bridge was first visited, where the River Greta joins the Tees amidst a glory of rocks and trees. After tea, which was served at the Morritt Arms, Rokeby, an old coaching station, now



modernised, Mr. W. A. Thompson (the president) thanked Mrs. Doust, the social secretary, for her good work in organising such a splendid outing. Mr. J. C. Thompson also spoke, regretting the absence of Mr. Arthur Enock, whose recent death had taken away one who was the life and soul of the Association. The party continued to Barnard Castle, where the majority visited Blagrove House, an ancient place containing many mediæval relics. Lastly a visit was paid to High Force, the well-known waterfall on the Tees.

Sheffield

Local chemists have had difficulty in finding suitable locums for their holidays this year.

Councillor H. M. Burdall, governing director of Burdall's, Ltd., manufacturing chemists, Gibraltar

Street, opened the Northern National Carnation Show in Sheffield on August 11.

Miscellaneous

FIRE.—An outbreak of fire occurred recently at the premises of A. Greaves & Son, Ltd., chemists, Tontine Road, Chesterfield. The flames were soon under control.

COUNCILLOR CHARLES JENKIN, chemist and druggist, and **MRS. JENKIN,** Lower Bristol Road, Bath, are sailing from Liverpool on August 24 on an Empire tour. They expect to be home about the end of November after travelling 36,000 miles.

POISON-LICENCE APPLICATIONS.—C. M. Varley & Co., Darlington, have applied to the Town Council for a licence to sell agricultural and horticultural poisons. Application for a similar licence has been made to the Kent County Council by Mr. M. D. Dancer, Lyminge.

THEFT.—At Marlborough Street Police Court, on August 13, Robert Clement (28), 24 Oxford Terrace, W.2, described as a writer, was sentenced to four months' hard labour on charges which included the theft of a bottle of perfume, value £2 10s., from the shop of Dorland House Pharmacy, Ltd., Regent Street, S.W.1.

PROTECTION OF ANIMALS ACT.—At Reedley, Lancashire, on August 15, Thomas Thornborrow was fined £5, with £2 10s. costs, for having placed in his garden fish sprinkled with strichnine. It was stated that a valuable dog was fatally poisoned after picking up something from the defendant's garden.

"LYSOL SOLUTION."—At Oldham Police Court, on August 9, James Goulding, Failsworth, was summoned for having sold lysol not of the quality demanded by the purchaser. The borough analyst stated that the sample submitted contained 4 per cent. of lysol [? cresol]. The defence was that the liquid was labelled "Lysol Solution," and that there was no onus on the seller to draw a purchaser's attention to the label. A fine of £2, with £3 10s. 6d. costs, was imposed. Notice of appeal was given.

BIRKENHEAD AND WIRRAL PHARMACISTS' ASSOCIATION.—The president (Mr. Frank Snow) was in the chair at a meeting of the Association held on August 1. The secretary read correspondence relating to the Articles of Pupilage, co-operative dividends on price-maintained articles, and the proposed change of half-holiday closing in the town. Each letter was discussed. A resolution was passed in favour of "No change" for the half-holiday closing.

DAMAGES AFTER COLLISION.—In Rugby County Court, on August 9, Evelyn Batchelor, through her father, claimed the sum of £34 3s. 9d. from Mr. W. Smith, chemist and druggist, Church Street. It was stated that plaintiff, while cycling, was run into by Mr. Smith's errand boy, who was cycling at an excessive speed and was on the wrong side of the road. She was unable to resume work for sixty-eight days. The Judge found the case proved, and awarded the plaintiff £29 8s., with costs.

Irish Notes

Brevities

Mr. H. A. Naylor, L.P.S.I., has opened a pharmacy at 24B King Street, Athlone.

In accordance with custom there will be no meeting of the Council of the Pharmaceutical Society of Northern Ireland during August. The next meeting will be on September 21.

At Westport Circuit Court, recently, Judge O'Donnell, K.C., awarded £65 compensation to Mr. J. J. Connolly, L.P.S.I., out of a claim for £103 for goods seized during the period of strife in 1922-23.

The new edition of the Belfast Hospitals Pharmacopœia, revised and brought up to date, with the collaboration of the medical profession, and issued by the Ulster Retail Drug Trade Association, is now ready and will come into official use on September 1. Copies are obtainable from the principal Belfast wholesale druggists.

Scottish Notes

A Scottish correspondent who has recently been in Stirling writes:—"The chemists' windows are very attractive. Mr. J. A. Hogg has a good display of cameras and toilet goods; Francis Spite & Co. show cameras, sponges, and other toilet goods; Mr. C. Yule has a display of shaving cream, tooth paste and Rexall goods; Mr. Robertson gives first place to Scotch Heather perfume in fancy containers; while Mr. J. Skinner displays soaps, bathing caps, and so forth. Mr. D. McGregor (successor to J. Moore & Son) has a dignified window display. There is a distinct professional atmosphere about this pharmacy."

The fifty-fourth annual conference of the British Dental Association was held in Dundee from August 7 to 10, and was attended by about 250 delegates. At the official reception Lord Provost W. H. Buist extended a civic welcome. Deputising for Principal Sir James Irvine, Professor D'Arcy Thompson extended a cordial welcome on behalf of the University of St. Andrews. Mr. Rowlett installed Dr. W. Graham Campbell, Dundee, to the office of president. In his inaugural address, Dr. Graham Campbell said that the Dundee Dental Club was formed in 1909. In 1914 the Dundee Dental Hospital was opened, making available the services of qualified practitioners to the poorer classes of the city. Following that, a Dental School was founded, in association with St. Andrews University. Mr. Sydney D. Venning, Plymouth, was elected president for the 1935 annual meeting, which will be held in Plymouth, and Mr. William Guy, Edinburgh, was elected vice-president. Among the subjects discussed at the various sessions of the conference were factors predisposing to immunity from dental caries, the relief of disease through ability to recognise conditions manifest in the mouth and throat, municipal dentistry, and the choice of an anaesthetic. The annual dinner of the Association was held on August 8, Dr. W. Graham Campbell presiding. Mr. George Northcroft, O.B.E., LL.D., chairman of the representative board, proposed

the toast "The City of Dundee and University of St. Andrews," which was acknowledged by Lord Provost Buist and Professor D'Arcy Thompson. Miss Muriel Ritson, Controller of the Health Insurance Department, Department of Health for Scotland, proposed "The British Dental Association," and Mr. Frank J. Pearce replied.

Lavender has a fascination all its own, so a writer in a recent issue of the "Scotsman" has discovered. The reader is then told that an excellent toilet vinegar can be made by placing 3 oz. of lavender blossoms in a stone jar with a quart of white vinegar and the rind of two lemons. Those whose harvest exceeds the 3 oz. will be interested to know that delicious lavender perfume can be made quite easily at home, and is just as fragrant and lasting as any shop-bought article. All that is required are a few layers of cotton-wool, some glass jam jars, and a quantity of the best Lucca oil. . . . At the end of three months the oil is drained away through fine muslin into pretty bottles. There are other ways of disposing of lavender in addition to the above, since "pot-pourri is delightful, and very simple to make. Gather the spikes on a hot sunny morning, and dry them thoroughly in the sun, then place them in any wide-mouthed jar that has a tightly fitting lid. Scatter a thick sprinkling of bay salt, which can be bought at any chemist, at the bottom of the jar. . . . When the jar is fairly full, sprinkle into the mixture half an ounce of powdered orris root, half an ounce of powdered cinnamon and half an ounce of crushed cloves." Finally, the writer tells us that lavender bath salts are most refreshing. Buy a few pounds of ordinary soda crystals, place them in a basin, and sprinkle over them some oil of lavender to the proportion of one teaspoonful of oil to one pound of crystals. Stir thoroughly together, then add some more soda crystals and some more oil until you have the desired quantity of bath salts, stirring briskly the whole time. A little mauve colouring sprinkled into the crystals from time to time will give the correct lavender tint. And it is all so simple!

Topical Reflections

By Xrayser

The Event of the Past Week

was the appearance of the eagerly expected "Poisons List and Rules" (*C. & D.*, August 11, p. 196 *et seq.*), which is now available for the consideration of the interests concerned. From a brief examination I can see that it is a piece of work upon which much expert effort has been expended, backed by the experience gained in the working of the older Poisons Schedule. The attention of pharmacists will no doubt be focused on certain outstanding features of the List and Rules, such as (1) the additions or alterations to the present Poisons Schedule; (2) the advisability of dividing Part I of the List into sections; (3) the different methods of sale to those who require Part I poisons for their own domestic use and those who may use them in their trade, profession or occupation, as well as emergency cases; (4) labelling and containers. These points affect principally the retail trade, but there is much to be noted as well by manufacturers and wholesalers.

Salesmanship

in the selling of drugs cannot be manifest in quite the way that is possible with perfumes, cameras, wireless sets or motor cars. Even so, however, the incident recorded in the letter, "Driving away trade" (p. 209) is a deplorable instance of the short-sighted policy of one pharmacist—and unfortunately he is not the only one. Many have only themselves to blame for decreasing returns and declining profits; their only idea of meeting "competition" is by selling goods below the prices charged by their competitors, instead of getting reasonable prices and giving service. There is a bright

side to the picture, however. Some time ago I visited the pharmacy of a friend, who explained to me his methods of display and how he handled his customers. Where possible goods of a series were arranged side by side, with the largest size on the right-hand side. If a customer asked the price of an article, the largest size was always shown first and the smaller sizes were mentioned only where absolutely necessary. Not always was a sale made of the largest size, but the percentage was high. This is salesmanship, and it can be exercised by all salespeople.

"Pharmacy for the Pharmacist"

is a threadbare topic, but "M.P.S." (p. 203) described a state of affairs which is unfortunately too common. It is not new, but I believe the practice of all and sundry selling pharmaceutical preparations and packed chemicals is increasing, and those within our ranks are often the biggest offenders as sources of supply. It is extraordinarily difficult, if not impossible, to stop such a practice. Drug auctions are open to anybody; and although usually all buyers are known, there is nothing to prevent anyone with the necessary cash, no matter to what trade he belongs, from buying quantities of potent drugs. The drug trade particularly seems, on its wholesale side, to attract a class of sellers which, unlike the reputable drug houses, is indifferent to the ultimate destination of the goods it supplies. Another reason is the over-production of drugs and galenical preparations and the necessity for producers of the small and irresponsible type to find a market.

Legal Reports

Pharmacy Act (Ireland), 1875.—In the Dublin District Court, on August 8, before District Justice Sullivan, Mr. John P. O'Connor, R.D., Dolphin Market, Dolphin's Barn, Dublin, was summoned at the instance of the Pharmaceutical Society of Ireland on charges of having on various dates in May and June, contrary to Section 30 of the Pharmacy Act (Ireland), 1875, kept open shop for the dispensing of medical prescriptions, he not being a person legally qualified in that behalf. Mr. John J. Gaynor, solicitor, prosecuted for the Pharmaceutical Society, and Mr. Alex. Lynn, B.L., defended. The Society's inspector gave evidence of having tendered medical prescriptions on the occasions mentioned in the summonses, and of having had them dispensed by the defendant. The registrar of the Society (Mr. J. J. Kerr) gave formal evidence. For the defence Mr. Lynn contended that the defendant was not keeping open shop within the meaning of that term. No witnesses were called by the defence. The justice, who reserved his decision for one day, found that the defendant committed breaches of the Act on six different occasions, and imposed a fine of £5 in each case, with £3 3s. costs to the Society, a total of £33 3s. At the request of Mr. Lynn time to pay the penalties was given.

New Companies and Company News

P.C. means Private Company and R.O. Registered Office

BRITISH COMMERCIAL GASES, LTD. (P.C.).—Capital £10,000. Objects: To carry on the business of manufacturers of all types of gases and chemicals, carbide of calcium and oxygen, etc. R.O.: 34 Victoria Street, London, S.W.1.

WESTERN CHEMISTS, LTD. (P.C.).—Capital £700. Objects: To carry on the business of manufacturing, pharmaceutical, analytical and dispensing chemists, etc. Secretary: A. G. Williams, 116 Commercial Road, Swindon, Wilts.

JOHN V. JAMES, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of manufacturers, buyers and sellers of chemical and kindred products and compounds, etc. R.O.: Oxford Circus House, 245 Oxford Street, London, W.1.

DOLBEAR & GOODALL, LTD. (P.C.).—Capital £5,000. Objects: To carry on the business of chemists, druggists, herbalists, wine, spirit, beer, mineral water, tobacco, cigar and cigarette merchants, opticians, etc. R.O.: 108 High Street, Oxford.

MALINKA PRODUCTS, LTD. (P.C.).—Capital £100. Objects: To carry on the business of manufacturers of and dealers in veterinary and toilet requisites and preparations, perfumes, proprietary articles, chemicals, etc. Secretary: Herbert E. Hunt, 60 High Street, Epsom.

SALIX, LTD. (P.C.).—Capital £100. Objects: To acquire the business of a dealer in specifics for slimming or reducing the human figure carried on by Ethel Mary Allan at 7 St. James's Street, S.W.1, and also the trade mark of "Salix." R.O.: 7 St. James's Street, London, S.W.1.

ANTI-OXIDISING CO., LTD. (P.C.).—Capital £100. Objects: To adopt an agreement with Cornelius Roemer, and to carry on the business of manufacturers, importers and exporters of chemicals, powders, gases, drugs, medicines, etc. R.O.: 38 Gresham Street, London, E.C.2.

R. H. WOODWARD, LTD. (P.C.).—Capital £200. Objects: To carry on the business of buyers, sellers and distributing agents for patent, pharmaceutical, medicinal, proprietary, industrial and medicated preparations, cosmetics, skin preparations, etc. Reece H. Woodward is permanent director.

E. W. WATT, LTD. (P.C.).—Capital £200. Objects: To carry on the business of herbalists and general pharmaceutical, consulting, analytical, manufacturing, wholesale and retail chemists and druggists, etc. The subscribers are E. W. Watt and Mrs. G. M. Watt, 26 Dartford Road, Dartford.

BRITISH & COLONIAL CHEMICAL CO., LTD. (P.C.).—Capital £2,000. Objects: To adopt an agreement with Fdk. B. Pickard, Sydne M. Waller and Solomon Lefkowitz, and to carry on the business of manufacturing, wholesale and retail chemists, druggists, etc. Solicitors: Aylett & Godwin, 14 High Holborn, London, W.C.1.

LEEDA PHOTOGRAPHIC CO., LTD. (P.C.).—Capital £12,000. Objects: To carry on the business of manufacturers of and dealers in photographic films, materials and apparatus and utensils of all kinds, photographs and pictures, paintings, prints, etc. Solicitors: J. D. Langton & Passmore, 16 Tokenhouse Yard, London, E.C.2.

RED STAR HYGIENIC SUPPLY ASSOCIATION, LTD. (P.C.).—Capital £100. Objects: To adopt an agreement between F. Freig and H. Schmoll; to acquire the trade mark "Red Star"; to produce surgical and other rubber goods of every description, pharmaceutical products, etc. The first directors are Frank Freig, Slough, and Hans Schmoll, Slough.

MAYER & PHELPS, LTD. (P.C.).—Capital £25,000. Objects: To acquire the business of surgical instrument specialists carried on by Ernest W. Mayer and Percy G. Phelps as Mayer & Phelps at Chiron House, 59/61 New Cavendish Street, London, W.1, and Chiron Works, Bulstrode Mews, Marylebone Lane, W.1. The permanent directors are Ernest W. Mayer and Percy G. Phelps.

Compulsory Liquidation

Arnold & Co. (Sales) Ltd., 27 Fetter Lane, London, E.C., vermicide dealers. The creditors and shareholders met on August 15 at the Board of Trade Offices, Carey Street, W.C.2, under the compulsory liquidation of this company, and decided to leave the matter in the hands of the official receiver. It was stated that the company was formed in May 1933 with a nominal capital of £5,000 to take over as a going concern the business as agent for the sale of vermicides carried on by Miss Enid Abrahams at 17 Plough Court, Fetter Lane. The sale consideration was £1,500 and the payment by the company of the existing liabilities of the vendor. The business for some weeks consisted of the supplying in bulk of vermicides and insecticides to large consumers such as municipal authorities, the sales being effected through provincial agents. The directors, being of opinion that the retail market was a very promising one, decided to open a campaign mainly through chemists, grocers and others. The accounts filed show liabilities £2,382 (ranking £2,227) and assets £155, absorbed in preferential and debenture claims. The failure is attributed by the directors to attempting to obtain a retail market for the company's products without first ensuring that the working capital was sufficient for the purpose.

Business Changes

MR. DAVID FRASER, chemist and druggist, has commenced business at 143 Maryhill Road, Glasgow.

MR. W. H. MINER, chemist and druggist, has taken over the business of Mr. Stones, Oxton Road, Birkenhead.

PAINES & REID, brokers, have removed from Market Buildings to Dunster House, Mincing Lane, London, E.C.3. [Corrected notice.]

MR. H. STEINMAN, chemist and druggist, has acquired the business of the late Mr. Alfred Hershberg, chemist and druggist, 77 Cheetham Hill Road, Manchester.

Fairchild Scholarship and Prizes

THE 1934 examination for the Fairchild scholarship and prizes was held on June 14 at the following centres:—Belfast, Cardiff, Dublin, Edinburgh, London and Manchester. The candidates who complied with all the conditions and entered for this year's examination numbered thirty-seven; twenty-seven represented England, five represented Ireland, four represented Wales, and one represented Scotland. The questions were set and assessed by:—Mr. Harry Brindle, B.Sc.Lond., F.I.C., Ph.C. (chemistry and physics); Mr. Peter Boa, Ph.C. (practical pharmacy and prescription-reading); Mr. Thomas Marns, M.P.S. (business knowledge and sale of poisons); and Professor J. Small, D.Sc., Ph.C., F.L.S., M.R.I.A., F.R.S.E. (botany and pharmacognosy). The general standard was good, 73 per cent. of the candidates receiving over 50 per cent. of the marks. The highest marks were obtained by Mr. J. L. Forsdike, but his acceptance of another scholarship disqualified him from holding the Fairchild scholarship. The following are the results:—

Mr. Albert John Lewis wins the scholarship, value £60, with 376 marks out of a possible 500. Mr. Lewis was

apprenticed with C. & P. James, Ltd., 29 Promenade, Cheltenham.

Mr. Frank John Brean wins the England prize, £5. Mr. Brean was apprenticed to Mr. J. H. Bishop, Broadway Pharmacy, Tunbridge Wells.

Mr. Andrew W. Kernahan wins the Ireland prize, £5. Mr. Kernahan was apprenticed to Mr. J. M. Glass, 1 Belfast Road, Bangor, co. Down.

Mr. Mark Evans wins the Wales prize, £5. Mr. Evans was apprenticed to Mr. John Mendus, Pembroke and St. David's.

The Scotland prize could not be awarded, no candidate obtaining the minimum number of marks required.

MR. A. J. LEWIS

The following is the text of the papers:—

CHEMISTRY AND PHYSICS

(Time allowed—two hours)

(Use equations where possible to represent chemical reactions)

(1) Explain what is meant by maximum tension of aqueous vapour. What is the effect of dissolved substances upon the vapour tension of water? Describe how you would determine the boiling point of a liquid if only a few drops were available.

(2) What do you understand by the following terms as applied to primary cells:—(a) Polarisation. (b) E.M.F. (c) Potential difference. Describe briefly methods differing in principle which are in use for preventing polarisation. Explain clearly one method for the determination of either the E.M.F. of a cell or the potential difference between the poles.

(3) Give a brief account of the methods which are in use for the utilisation of atmospheric nitrogen in the manufacture of inorganic compounds containing nitrogen. In each case indicate, if you are able, how ammonia may be made as the final product.

(4) Commencing with metallic iron describe how you would prepare specimens of—(a) Ferrous sulphate crystals. (b) Ferric chloride solution. (c) Reduced iron. Give three methods for the oxidation of a ferrous salt to the ferric state and for the reduction of a ferric salt to the ferrous state. How would you prove that the change was complete?

(5) Give briefly the principles underlying methods which may be used for the determination of the molecular weight of two of the following:—(a) Ethyl alcohol. (b) Cane sugar (sucrose). (c) Sulphuric acid or an organic acid such as tartaric acid.

PRACTICAL PHARMACY AND PRESCRIPTION READING

(Time allowed—one hour and a half)

(1) Describe the official directions for preparing:—(a) Liquid extract of cascara. (b) Liquid extract of liquorice. (c) Compound tincture of benzoin. (d) Compound tincture of gentian. What is the object of boiling the percolate in (b); and why is the strength adjusted by evaporating to a defined specific gravity instead of to a defined volume as in most other liquid extracts? State the constituents of (c) and (d).

(2) (a) Strong solution of iodine. (b) Weak solution of iodine. (c) Simple solution of iodine. State the iodine strength of these preparations. (a) and (c) being approximately the same strength in iodine, wherein do they differ, and why?

(3) Write the full official name for Donovan's solution, Dover's powder, Parrish's syrup, syrup of wild cherry, refined sugar, Friar's balsam.

(4) Write a short note on the making of pills including a reference to suitable excipients for such medicaments as quinine salts, rhubarb and essential oils.

(5) Write the following prescriptions in English and render the directions in appropriate terms:—

(a) Quin. hydroch. gr. x; acid. hydrochlor. dil. m xv.; liq. strych. hydrochlor. 3 ss.; syr. tolutan. 3 i.; aq. destillat. ad 3 vi. Misce et fiat mistura. Sig. Sumat coch. med. duo ter die post cibum.

(b) Potass. chloratis 3 i.; sp. chlorof. 3 iss.; infus. caryoph. recentis ad 3 vi. Fiat collutorium. Sig. Nom. Prop. Quarta quaque hora utend.

BUSINESS KNOWLEDGE AND SALE OF POISONS

(Time allowed—one hour)

(1) E. Green & Co., Manchester, have sold goods to Mr. G. Thomas, of London, as follows:—

	£ s. d.
Jan. 10	3 7 6
" 18	10 17 8
Feb. 14	5 5 7
Mar. 16	8 3 7

Thomas returned goods as follows:—

Jan. 24	2 1 8
Mar. 18	3 2 7

Make out an account from Green & Co. to Thomas and deduct 3*4* per cent. for payment within fifteen days. Receipt the account assuming it to have been paid by cheque.

(2) (a) What is a pass book and a pay-in book? Give a brief explanation. Why does the bank balance as shown by a customer's cash book not always agree with the balance as shown by his pass book? (b) Describe the kinds of accounts a customer may run with his banker, and explain the purpose of each. Do bankers usually allow interest on all these accounts?

(3) How should the following be labelled:—Tincture of iodine; liniment of camphor; oxalic acid; infusion of digitalis; chloroform liniment, B.P.C.; syrup of red poppies; barium carbonate; phenol lozenges. A household remedy containing:—Paregoric, aniseed, peppermint, syrup of tolu, laudanum.

(4) To which part of the Poisons Schedule would you assign the following substances? Indicate precisely the part into which each falls, giving reasons when necessary. Indicate those which are controlled by the Dangerous Drugs Act:—Barbitone; phenol ointment; black wash; Dover's powder and phenacetin; dilute solution of ammonia; sulphonal; resin plaster; atropine ointment; nicotine; linctus diamorphinæ and ipecac., B.P.C.; heroin.

BOTANY AND PHARMACOGNOSY

(Time allowed—one hour)

(1) Distinguish carefully between the structure of a seed and the structure of a fruit, using as your examples senna pods and cardamom seeds. Simple line drawings should be given as illustrations.

(2) Describe briefly some of the variations in the storage of reserve materials in plants, illustrating each variation by one or two pharmacoparial examples.

(3) State clearly and concisely what is meant by the phrase—"Digitalis is a biennial." Discuss as far as you can the physiological processes involved in the B.P. specification—"Digitalis is the leaf of *Digitalis purpurea*, Linn., rapidly dried at a temperature between 55° and 60° as soon as possible after collection."



Trade Notes

HALIBUT-LIVER OIL PILLS.—Scott & Bowne, Ltd., 10 Stonecutter Street, London, E.C.4, are now marketing a new line—Scotts halibut-liver oil—Halivite. The new product is claimed to be the only halibut-liver oil with a vitamin D potency approximately as high as that of its vitamin A content. The oil is supplied in its natural



form and also in the unique form of pills. Each Scotts Halivite pill contains two drops of the oil, and is manufactured in a specially patented machine developed in their laboratory for this purpose. The accompanying illustration shows a portion of the company's stand at the exhibition held at Bournemouth in connection with the recent annual conference of the British Medical Association. The picture is of exceptional interest, as this is the first occasion that the original oil painting of the company's world-famous fisherman trade-mark has been exhibited outside their offices. Considerable interest was aroused by the life-size reproduction, which was actually painted from the photograph taken at the quay side when the founder of the business, Mr. Scott, first landed in Norway. The fish was weighed at the time and proved to be 156 lb. Incidentally this was the first occasion, for more than thirty years, that Messrs. Scott & Bowne have taken part in any exhibition.

NEW LIST.—Dudley & Co., Ltd., 451 Holloway Road, London, N.7, have sent us their latest list (No. C.D. 1550) of new designs in autumn posters, showcards and tickets. The list contains many valuable ideas and suggestions, and will be sent free on application.

KALZANA.—Therapeutic Products, Ltd., Aintree Road, Perivale, Middlesex, announce that from September 1 Kalzana is to be destamped. On another page of this issue the company show how in fixing prices they have endeavoured to hold the balance fairly between customer, chemist and themselves. Information is also given regarding the returning of out-of-date stock.

HARRIET HUBBARD AYER, LTD., 130 Regent Street, London, W.1, have brought out a new shade of face powder, called New Tan, and it is particularly suitable for use by those whose skin is tanned. This new line is being packed in a small size as well as in the Beautifying and Harriet Hubbard Ayer (square box) powder, since it is realised that there are many women who would like to try a dark powder during the summer months, but feel that it is rather an extravagance to buy a large box of a powder which in all probability they will only use for a month or so.

KLEEN BLADES for safety razors are made by W. R. Swann & Co., Ltd., Penn Works, Sheffield, 6.

EDUCATIONAL INSTITUTIONS.—The following is a list of the educational institutions advertising in this issue:—

Birmingham Central Technical College.
Brighton Technical College.
Bristol University.
British Optical Institute.
Chelsea Polytechnic.
College of Preceptors.
Educational Institute of Scotland.
Glasgow College of Optics.
Glasgow Royal Technical College.
Harris Institute, Preston.
Heriot-Watt College.
Huddersfield Technical College.
Kingston-upon-Thames Technical College.
Leeds Technical College
Leeds University.
Leicester College of Technology.
Liverpool School of Pharmacy.
London College of Pharmacy.
London Hospital Medical College.
London Refraction Hospital.
Manchester University School of Pharmacy.
Merchant Venturers' Technical College.
National Association of Opticians.
National School of Chiropody.
Plymouth Technical College.
Robert Gordon's Colleges.
Royal Dental Hospital School.
Royal Dispensary, Edinburgh.
St. Andrews University.
Scurr, C. A.
South of England College of Pharmacy.
Sunderland Technical College.
Westminster College of Pharmacy.
Woolwich Polytechnic.
Worshipful Company of Spectaclemakers.

STUDENTS' BOOKS.—The following advertisers in this issue offer books suitable for students:—

Bailliére, Tindall & Cox.
Pitman, Sir Isaac, & Son, Ltd.
Potter & Clarke, Ltd.
Prescriber, The.

THE CHEMIST AND DRUGGIST.

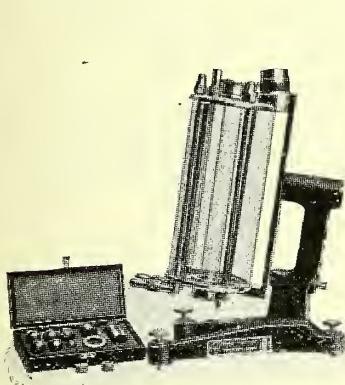
BATH CLEANSER.—The County Chemical Co., Ltd., Bradford Street, Birmingham, 5, are the manufacturers of a cleaning preparation in paste form supplied under the name of Chemico Bath Cleanser. This product is not only most efficient for the purpose indicated by its name,



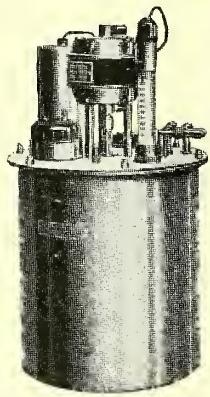
but is also excellent for household utensils generally and for the hands. It contains no abrasive and is nicely perfumed. Available in the four sizes shown in the illustration, and in a 6 lb. pail, this line is one which should achieve considerable sales through chemists.

BLUNDELL & CO. (LIVERPOOL), LTD., 119 Liverpool Road, Great Crosby, Liverpool, 23, who specialise in the developing and printing of paper photographic spools, processed the snapshot which recently won a first prize in the "Daily Mail." This was a picture of a fire at the Litherland Rubber Works, and was taken with a Granville G.16 paper spool. The film was received by Messrs. Blundell at 12.45 p.m. on Saturday and a whole plate enlargement was returned to the customer by 4 p.m. in order that the picture might be sent off the same night for entry in the competition.

THE HOEPPLER VISCOMETER.—The new viscometer illustrated below depends upon the fall of solid bodies of various sizes in a closed column of liquids or gases. The apparatus is stated to be remarkably accurate, while the range of measurements is from 0.01 over 100,000 centipoise. The high degree of accuracy is attained partly by the application of the principle of the eccentric ball drop and partly by the dimensions of the parts of the apparatus, which are accurate down to ± 0.002 mm. The viscometer is not only suitable for oils but for all liquids, whether light, dark or opaque. Tables are supplied with the instrument which show conversion from absolute



THE HOEPPLER VISCOMETER



THE HOEPPLER THERMOSTAT

degrees (centipoise or centistoke) to Engler. It is also capable of measuring the viscosity of gases, also the slight differences in viscosity between tap and distilled water can be obtained. Industrial models are almost as accurate as the standard model for fundamental investigation.—Another interesting piece of apparatus is the new Hoeppler thermostat, which is manufactured by the same firm. This can be connected to any electric plug and is specially useful for long periods of work, as objects and apparatus can be maintained at constant temperature for weeks at a time, the condition of stability being reached in a few minutes. Further particulars regarding these instruments may be obtained from Townson & Mercer, Ltd., 34 Camomile Street, London, E.C.3.

SNOWSOFT.—Reppip Laboratories, 37 Teevan Road, Addiscombe, Croydon, have brought out under the name of Snowsoft a hand cleanser which is stated to be a specially prepared vegetable tissue in a state of fine division, with certain emollient ingredients. It is agreeably perfumed, contains neither alkali nor dry soap, and retails at a popular price.

THE TEASY TEE.—Golfers connected with the drug trade and others who read the article in the *C. & D.* (July 21, p. 122) on "Recreations which Bring Business" will be interested in an invention of Mr. A. Evans Thorp (Norton's, Ltd., manufacturing chemists), Leigh-on-Sea, Essex. This is the Teasy golf tee. It is a circular piece of rubber with serrated edges having a cord attached with a lead disc. The tee is made in heights of $\frac{1}{4}$ in. and $\frac{3}{8}$ in., and it can be supplied separately or as a "twin." The inventor claims that by use of this tee a golf ball can be driven a uniformly greater distance than with any other, as the club meets with no resistance.

Births

Notices for insertion in this column must be properly authenticated.

MARSHALL.—At 9 Queen's Road, South Norwood, London, S.E., on July 31, Rose, wife of Oscar H. Marshall, M.P.S., of a daughter (Margaret Anne).

Marriages

JONES—ROBERTS.—At Penlan Congregational Church, Pwllheli, on August 9, Ifor Jones to Dilys, daughter of Mr. W. E. Roberts, chemist and druggist, Pwllheli.

MARRIS—EATON.—At St. John's Church, Birkdale, Southport, on August 4, George Wesley Marris, Ph.C., to Dora Eaton.

MILLER—BROWNLOW.—At Sage Cross Street Methodist Church, Melton Mowbray, on July 30, William D. Miller to Nesta, only daughter of Mr. R. W. Brownlow, chemist and druggist, Melton Mowbray.

Deaths

GOODYEAR.—At Rothesay, Bromley, Kent, on August 14, Mr. Thomas Edward Goodyear, chairman of Stafford Allen & Sons, Ltd., manufacturing chemists, 7 Cowper Street, London, E.C.2, and late of Viney, Price & Goodyear, chartered accountants, St. Martin's-le-Grand, E.C.1, aged seventy-one. Mr. Goodyear joined the directorate of Messrs. Stafford Allen & Sons in 1915, and became chairman on the death of Mr. E. R. Allen in the following year. The history of the company was given in our issue of July 1, 1933 (p. 22). During the European war Mr. Goodyear rendered valuable service as a member of one of the committees set up by the Ministry of Food. He was well known in the City, and among his numerous interests were Hope Brothers, Ltd., and Crockers, Ltd.

HUMPHRY.—At Elim, Ridge Hill, Dartmouth, on August 10, Mr. Horatio Humphry, J.P., chemist and druggist, 2 Fairfax Place, aged eighty-two. Mr. Humphry had resided in Dartmouth for nearly sixty years. He leaves a widow, a son and a daughter.

LLEWELLYN.—At Cowbridge, Glamorganshire, on July 20, Mr. John Llewellyn, Ph.C., aged ninety.

OVERTON.—At his residence, 13 Argyle Road, Southport, on August 12, Mr. John Overton, managing director and chairman of R. Sumner & Co., Ltd., wholesale and manufacturing chemists, 40 Hanover Street, Liverpool, aged eighty-two. Mr. Overton was a well-known figure in medical and pharmaceutical circles. He had been managing director of R. Sumner & Co., Ltd., from its formation as a limited company in 1900, prior to which he had, for many years, carried on the business in partnership with the late Mr. A. M. Hugill. Mr. Overton was one of the oldest registered pharmacists, having qualified sixty years ago. A native of Merthyr Tydfil, he travelled extensively in Wales during his business career. He had lived in Southport for about forty years, and travelled daily to his office in Liverpool till within the last three months. Mr. Overton leaves a married daughter and a son, Dr. Reginald Overton, who is in practice in London.

SOUTHERN.—At 87 Wilford Road, Nottingham, on July 18, Mr. Matthew Southern, chemist and druggist, aged fifty-three.

WILLIAMS.—On August 6, suddenly, Mr. David Cadwaladr Williams, chemist and druggist, 36 Bore Street, Lichfield, aged seventy-two. Mr. Williams, who was a native of Holywell, was for some years engaged at Singapore, Shanghai, and in Manchuria. During the Russo-Japanese War he voluntarily gave his services to the wounded. He returned to England in 1908, and purchased the pharmacy of Bailey & Higgs, which he continued up to the time of his death.



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"The Chemist and Druggist" COMPACT LIBRARY

PHARMACEUTICAL FORMULAS (P.F. Vol. II).

Published 1934. Supplementary to Vol. I, and known as "The Chemists' Recipe Book." Contains formulas for adhesives, beverages, cleaning materials, culinary and household requisites, horticultural and agricultural preparations, inks, lozenges, perfumes, photographic preparations, polishes, soaps, toilet articles, varnishes, veterinary preparations, etc., including numerous descriptions of practical methods employed in their manufacture, and other information of use to pharmacists and manufacturers. Over 1000 pages. Price 15s. net, by post 15s. 9d.

THE ART OF DISPENSING.

The tenth edition of this well-known work is now ready. The book has been thoroughly revised and considerably improved, while maintaining the features which have made it so popular with several generations of students. It is kept by chemists in the dispensary for ready reference in cases of difficulties arising in the course of the day's work. Price 8s. net, by post 8s. 6d.

VETERINARY COUNTER PRACTICE.

Chemists interested in veterinary practice will find the work indispensable, as it deals with the ailments of horses, cattle, sheep, pigs, dogs, and poultry, and the remedies that can be supplied. New edition 1930 (Eighth) brings this book thoroughly up to date. Price 7s. 6d. net, by post 8s.

DISEASES AND REMEDIES.

Now in its sixth edition (March, 1931). It has been carefully revised by an experienced medical practitioner and parts of the book have been rewritten. Price 5s. net, by post 5s. 3d.

THE PHOTOGRAPHIC CHEMIST.

This is a concise guide to chemists commencing and carrying on a photographic department. Price 3s. 6d. net, by post 3s. 8d.

PHARMACEUTICAL FORMULAS (P.F. Vol. I).

The tenth edition of this, the most complete pharmaceutical formulary in the English language, is devoted to the official and semi-official preparations of practically every country in the world. This volume (published 1929) contains 1146 pages. Price 15s. net, by post 15s. 9d.

PRACTICAL METHODS OF URINE ANALYSIS.

The object of this book is to give chemists exactly the information they want on the subject. The book was written by a pharmacist who was an expert in this work, and has been revised by a medical practitioner and lecturer of long experience in clinical analysis. (Fourth Edition). Contains 97 pages. Price 4s. net, by post 4s. 3d.

Published by "The Chemist and Druggist"

28 Essex Street, LONDON, W.C.2

Branch Offices: Manchester and Sheffield, England, Glasgow, Scotland. Melbourne and Sydney, Australia. Auckland, New Zealand.

Information Department

INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated.

- | | |
|---|------------------------------|
| P/48. Ajax toughened tumblers | B/15. Guardian tooth-brushes |
| A/15. Anchored prophylactic tooth-brush | W/15. Kelpamalt |
| P/15. Dentifrice chewing gum | S/15. Kiinit shampoo powder |
| | E/14. McQueen's veg. tablets |
| | E/14. Quoffit stout |

THE
CHEMIST AND DRUGGIST
 VOL. CXXI. August 18, 1934 NO. 2845

The Educational Outlook

OUR Educational Number not only serves as a summary of the requirements for the qualifications in pharmacy and allied professions but also gives an opportunity to review educational policy and examine any propositions put forward for moulding the future of pharmacy. Many years have passed since we first called attention to the necessity of revising the syllabuses applying to pharmaceutical examinations. Such revision, in a tentative form, has been available for several months past, but the final adjustments have not yet been made. In any case it cannot apply to students entering for their collegiate course in the coming session. At the same time, those who visit various teaching colleges are fully aware that methods and subjects were remoulded by the 1932 British Pharmacopoeia. No detailed list as set out in a routine syllabus was needed : the B.P. itself was a governing factor, and teaching and examinations were modified in accordance with new standards. The requirements were extended, and perhaps it was this extension which stiffened the attitude of those who were wavering on the question whether pharmacists of the future should absorb knowledge with a medical bias to include, for example, some knowledge of physiology. The syllabus committee appointed by the Pharmaceutical Society's Council produced a report, after an exhaustive investigation, in harmony with the views of the University of London authorities.

University Influence

It would not be fair to say that the scholastic requirements of a university had taken out of the hands of the Pharmaceutical Council the moulding of its own educational policy. At the same time, any outsider who is sufficiently interested in educational development is conversant with the preponderant influence of the Universities in moulding pharmaceutical educational policy. We must admit that these Universities are only concerned with degrees (in this case Bachelor of Pharmacy or Bachelor of Science in Pharmacy); but even if this is so, it raises a little apprehension as to how far this academic side will affect the qualification for the chemist and druggist. In any case the Preliminary Scientific examination is the same for all candidates, irrespective of the final qualification. The principal alteration suggested in this examination is in botany. Similar educational authorities to the Council made the change, several years ago, from pure botany to studies having relationship with animal life, and now the Pharmaceutical Council has come down on the same side. The term "biology" is to be used and will include botany and zoology. Botany, as a science, has shown a wonderful development in recent years. It was obvious that some harmonising with pharmaceutical needs should be made. The

chemistry and physics will be extended : there is also the proviso that evening classes shall be no longer recognised for the academic course. All this is very well, but what the student would like to be certain about is the standard expected, as this is the acid test of any syllabus. Examinations can be and are misleading unless some standardised method of procedure and marking is used throughout. It is on this point that educationists outside the inner circle find most to cause uneasiness. The rota for examiners can never be static, but in the choice an intelligent conservatism should be applied with adequate provision for the introduction of the newer outlook to ensure uniformity in the standard of examinations. It would be interesting to know whether interchange of examiners is possible in view of the recent difference between London and Edinburgh results. There is a disposition to give more power to examiners in dealing with rejected candidates by requiring a further period of scholastic training where such has been shown to be necessary. Another point is to limit the number of times of re-entry of a candidate who has been referred in one subject. Such a proviso will need careful watching, and could never have been tolerated in an oral examination. The Pharmaceutical Chemist Qualifying examination is now — and has been since the B.Pharm. was introduced—one of the most burdensome in appearance, though the results seem to show that the examiners exhibit a wise attitude of mind. In the suggestions for reform in the Pharmaceutical Chemist qualification, botany is displaced and pharmacognosy is to be condensed ; this will save some part of the time ; but we note that physiology is to appear as an additional subject, and unless something is done about the number of papers and practical work in the other subjects it is difficult to see where any material saving of time can be effected.

A Promised Reform

We are promised, at last, that the qualification of chemist and druggist is to be restored in status and may be used as a first step to reach the qualification of pharmaceutical chemist. It is difficult to see what is the practical value of this move, unless it is made compulsory, as it was in the old days. However, experience may prove that this grudging concession to a rational method of training may ease the economic pressure in certain cases. In many respects the training and qualification for a chemist and druggist or for a pharmaceutical chemist resembles a jig-saw puzzle. It follows that a rearrangement in the chemist and druggist training and qualification will be necessary, and here we find that physiology as a new subject is to be introduced. The question whether we are going naturally arises after any survey of changes likely to be introduced into an examination of the character set out in pharmacy. Nine-tenths of those who qualify undoubtedly do so for the sole purpose of carrying on the business of a chemist and druggist. The academic or professional side has little appeal, while modern economics has constricted practical pharmacy in a shop to narrow limits. More and more we find in institutions the same contraction taking place ; and one of the difficult things is to

avoid, in training a pharmacist, producing expectations of a professional career which cannot be fulfilled. The syllabuses are quite well done; but even the most optimistic among the educationists must be aware that unless a wider orientation of pharmacy in relation to its kindred sciences arises, our educational system will provide its graduates not with bread but a stone.

A Reform in Scholarships

WE congratulate the trustees of the Fairchild scholarship and prizes on being pioneers in insisting that the Preliminary Scientific examination shall have been passed by all entrants for the Fairchild examination. The only criticism which has arisen against this stipulation has been the possible case of a candidate who may be referred in one subject at the April Preliminary Scientific examination, which ends the academic year for that section of his training. But surely to allow a carry over is to defeat the object. The results of the scholarship examinations for the present year showed an unusual occurrence; one candidate entered for them all and came out first in every case, which is a tribute to the examinee as well as to the examiners. In spite of this we would suggest that in the pharmaceutical scholarship examinations the panel of examiners is too wide. A scrutiny of the marking in the examinations shows that uniformity in method has not yet been achieved.

Inosite Phosphoric Compounds

WE have pleasure in calling attention to a book by Mr. Stefan Otolski, published under the auspices of the Polish Chemical Society, which should prove of considerable interest to research chemists and others interested in modern developments of organic chemistry. After a brief introduction, the book is divided into the following sections:—

I. Historical outline.

II. The composition and structure of the phosphoro-organic acid found in the seeds of plants.

III. Synthesis of phytic acid.

IV. Inosite.

V. The distribution of the salts of inosite phosphoric acid (phytin) and the way of isolating them.

VI. Physical and chemical properties of the inosite hexaphosphoric (phytic) acid and its salt.

VII. Lower inosite phosphoric acids.

VIII. Analytical investigations of phytin.

IX. Analysis of inosite phosphate compounds.

X. Conclusion.

A bibliography and certain analytical data are appended. Although it is impossible to summarise so important a piece of research in a few sentences, we may briefly allude to one or two of the interesting issues raised by the author. It appears that at present the synthesis of inosite is difficult and expensive; it follows that "an easy synthesis of inosite presents a very interesting problem for pharmaceutical chemistry." In the concluding section of the book an interesting comparison is made of the therapeutic possibilities of lecithates, glycerophosphates and inosite phosphates (phytates), the last-named constituting "a curious group in which there is much yet to be investigated and cleared up." Mr. Otolski goes on to suggest that, for reasons which he indicates, inosite phosphoric preparations can be used as an addition to foodstuffs. On general grounds the medical profession will no doubt welcome this suggestion, as neither lecithates nor glycerophosphates have been regarded as universally successful since their introduction into medicine. The book at present exists only in typescript in an English version, but it is hoped that it will shortly be published in this country. It is of further interest to know that a second volume on the subject is in course of preparation.

League of Nations

THE eighteenth session of the Advisory Committee on Traffic in Opium and other Dangerous Drugs is the subject of a report (C. 256. M. 105. 1934 XI) to the League of Nations issued in this country (price 1s. 9d.) by Allen & Unwin, 40 Museum Street, London, W.C.2. The statistics of manufacture appearing on p. 3 of the report were given in fuller detail in our issue of January 20 (p. 77). The totals for 1932, however, have since been ascertained; they are as follows: Morphine, 25,656 kilos.; diacetylmorphine, 1,315 kilos.; cocaine, 3,973 kilos. The American representative drew the Committee's attention to the discovery by an American expert, Dr. Small, of a new drug, dihydromesoxymorphone-D, which was said to be much more powerful than morphine.

The only other topic of pharmaceutical interest in the report is the account (Annex 3) of the process employed by the Alkaloida Co., Ltd., Budapest, Hungary, for the extraction of morphine and other alkaloids from the straw of the poppy plant. It is stated that *Papaver somniferum* is cultivated in almost every part of Hungary, and that on the average 800 gm. of morphine and 80 gm. of codeine can be obtained from each ton of the straw. The process of extraction is protected by a patent, which is printed in an English translation.

Trade-Mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1934, p. 304.

(From "The Trade Marks Journal," August 8, 1934.)

- "ANALAR"; for chemicals (1). By The British Drug Houses, Ltd., Graham Street, City Road, London, N.1, and Hopkin & Williams, Ltd., 17 Cross Street, London, E.C.1. 550,658.
- "NATEX"; for medicated soap (3). By Modern Health Products, Ltd., 38 Langham Street, London, W.1. 548,265. (Associated.)
- "PATTISON'S"; for magnesium carbonates, etc. (1 and 3). By Turner & Newall, Ltd., Woodland Road, Spotland, Rochdale. 551,859/860. (Associated.)
- "SILVAPHANE"; for medicated transparent paper (3). By British Sidac, Ltd., 59A London Wall, London, E.C.2. 549,801. (Associated.)
- "CHARLES BOTTING"; facsimile signature; for medicinal chemicals (3). By W. E. G. Wickham, 65 Sidwell Street, Exeter. 550,903.
- "GARNETTE"; for medicated antiseptic preparations (3). By Harry E. Matthews, Ltd., 66 Kennington Park Road, London, S.E.1. 550,035.
- "TRANSCUTAN" on scroll with classical design of man with book, seated on wings; for bath preparations (3). By Transcutan, Ltd., 15 Sheepscar Street South, Leeds, 7. 550,963. (Associated.)
- "NICO-VITA"; for medicated sweetmeats (3). By Teasdale & Co., Ltd., South Vale Works, Westmorland Street, Carlisle. 551,073.
- "EDGAR J. SAXON" facsimile signature; for medicinal chemicals, excluding soap (3). By J. L. Wilson, 314 Uxbridge Road, Acton Hill, London, W.3. 551,111.
- "PHILBARM"; for medicinal yeast (3). By Phillips Yeast Products, Ltd., Park Royal Road, London, N.W.10. 552,247. (Associated.)
- "WHITE GUARD"; for goods (47) and for perfumery, etc. (48). By T. B. Rose & Co., Ltd., Knight's Road, Silvertown, E.16. 551,538/539.
- "NOVALIS"; for cream, liquid or powder hair preparations, excluding soap (48). By The County Chemical Co., Ltd., Bradford Street, Birmingham. 550,553.
- "STAMMAT"; for perfumery, etc. (48). By Helen M. Methven, The Croft, Penshurst Gardens, Edgware, Middlesex. 550,856.
- "NICOLETIE"; for perfumery, etc. (48). By Yardley & Co., Ltd., 105 Carpenter's Road, Stratford, E.15. 551,215.
- "L'ORLE"; for perfumery, etc. (48). By A. Levy, 4 Queen Anne Street, London, W.1. 551,923.

EDUCATIONAL

information

Pharmacy

GREAT BRITAIN

THE examinations of the Pharmaceutical Society are written and practical, with an oral test in pharmacy and pharmacognosy. Each examination reveals some new phase provoking thought on the part of those whose duty it is to conduct the examinations. The latest is that oral examination should be eliminated entirely. In pharmacognosy, which is a subject varying in its incidence and liable to most change in the coming years, it is suggested oral be cut out; but information to hand gives the Pharmaceutical Council as wishful of retaining oral in pharmacy. Pharmacy, like medicine, changes with the times, and methods have changed so much in recent years that the practice of the profession requires a knowledge of ancillary subjects which the older men now practising have gained from personal experience rather than explicit teaching. There is a proposal for including some physiology, and under the term biology to include some zoology. But these things are still in the clouds, though it would be a mistake to imagine they will not be condensed into something practical. Each year, we are pleased to find, budding pharmacists are better able to express themselves in writing their answers. That is all to the good, as knowledge has no value unless it can be expressed so as to be understood by others.

The written part of the examination precedes the practical, and provision is made to hold the examinations at various centres throughout the country in order to prevent unnecessary travelling. The practical takes place in London and Edinburgh only, and is arranged to follow the written as soon as practicable. Students who have passed recognised science examinations equivalent to the Preliminary Scientific have many advantages; a good foundation is laid for future progress. Greater stress is being laid upon the value of taking the Preliminary Scientific early, and those whose experience of pharmacy justifies them in expressing an opinion have no hesitation in suggesting to parents and guardians that it should be taken before apprenticeship begins. Evening or part-time classes are to be abolished in the near future. Such constriction may appear a hardship in some cases, but only brilliant students are able to do themselves justice under the handicap of studying and serving a period of apprenticeship. It should not be forgotten that examinations nowadays are a better test for efficiency of the practical kind, cutting out that type of person who could bluff his way through an

examination on a minimum of knowledge. In this respect alone the move forward of pharmacy as a professional calling has been well worth while.

The number entering pharmacy through a matriculation standard is still increasing, and soon we shall find that this is the standard examination. A preliminary foundation in the arts is a sound one on which to build. The B.Pharm. degree, as we have pointed out in previous years, was a slow starter for recognition, and the Ph.C. was an easy first. Many more are taking the B.Pharm., and with the recognition of Manchester and Glasgow Universities (and possibly others in the near future), the Pharmaceutical Council will face a new situation whereby pharmacy is recognised on an academic basis and two classes arise in the practice of the profession. For a few positions—limited in number by available openings—a university degree is an asset; but for the retail chemist and druggist it must be regarded as a means for educating a man beyond his requirements for earning his living.

The number of schools recognised for the training of students for University standard is now at a reasonable figure, and no increase is necessary to meet the present or even future needs in pharmacy, as it would be an advantage if the number of pharmacists should not exceed the economic absorption. The syllabus for the Intermediate examination of the University in science differs from the Preliminary Scientific in pharmacy; an outline is set out under the University Degrees. London University, whether "internal" or "external," despite its abnormal length of examination, which is now in process of revision, certainly advances the profession of pharmacy, out of which all phases obtain some benefit. The only difference between a Ph.C. examination and a B.Pharm. examination is in forensic pharmacy, which in its present form is foolish for practical requirements. What such an examination for pharmacists should require ought to be not only law, but practical detection of poisons in body fluids, which is a sensible way of dealing with this troublesome subject. At least pharmacists would have some knowledge of what poisons are and not imagine all that is necessary may be tabulated in a list. The draft Poisons Schedule of the newly created Poisons Board may cause our authorities to think much more rationally on poison law and practical pharmacy.

We recommend that use should be made in the pharmacy, wherever possible, of the syllabus, or parts of the syllabus, outlined in the following pages. The preparation of galenicals in the shop is now rare, which is a great pity. The apprentice should be given the opportunity of making everything possible, and, above all, testing drugs and preparations for their identity

Chemist and Druggist and Pharmaceutical Chemist Qualifications

(IN BRIEF)

1. Notification and registration with the Pharmaceutical Society of having passed an approved Preliminary examination.
2. Apprenticeship (indentured), during which provision should be made for attendance in approved technical institutions of chemistry 200, botany 120, physics 120 hours.
3. Preliminary Scientific examination in chemistry, botany and physics.
4. Complete the necessary 4,000 hours' experience in an open shop, approved public institution or wholesale laboratory, during which, or after, spend 300 hours in pharmacy, 120 hours in pharmacognosy, 300 in pharmaceutical chemistry, in school, or 2,000 hours if proceeding for pharmaceutical chemist only, and collegiate hours: pharmacy 620, pharmacognosy 270, chemistry 440, botany 270.
5. At the age of 21, or thereafter, Chemist and Druggist Qualifying examination in pharmacy, pharmaceutical chemistry, pharmacognosy, forensic pharmacy; or pharmaceutical chemist qualification in pharmacy, pharmacognosy, chemistry, botany, and forensic pharmacy.



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and purity. The B.P. is quite a good guide, and a wise employer will reap great benefit by encouraging this practical interest of his apprentice in the things that matter. The business of a pharmacist is not only selling goods, and the employer should arrange the work to provide a thorough grounding. Regulations are now being put forward to incorporate within the indentures the form of training for apprentices. They may act as a deterrent; but if so, institutions will become the most likely places for training apprentices, and it is not going to be good for the profession to canalise training. It is advisable for eligible students to train and enter for the scholarships now available as a sound method in beginning life.

Preliminary Examinations

The first step on deciding to take up pharmacy is to secure a certificate covering the following subjects:—
 (a) English; (b) arithmetic, algebra, geometry; (c) a language other than English; (d) another language or one of the following subjects—higher mathematics, experimental mechanics, chemistry, physical geography, physics, botany, biology, geology. These subjects must have been passed at not more than two examinations of the same examining authority. The registrar is empowered to accept certificates fulfilling these requirements when obtained from any examining authority specified below. Should the compulsory subjects, with the necessary additional ones, have been passed at not more than two examinations in any institution not included in the list, such certificates may be submitted for consideration by the Council. In general terms, the certificates submitted must be of equal value to those specified in the list. The list of certificates at present accepted is given below. Any student entering pharmacy and desirous of obtaining a degree through a university must pass its matriculation examination.

LIST OF CERTIFICATES ACCEPTED

The following is a list of the principal certificates accepted:—

The Final examination for a degree of any University in the United Kingdom approved by the Council.

Queen's University, Belfast.—Matriculation Examination.

Universities of Birmingham, Leeds, Liverpool, Manchester and Sheffield.—Joint Matriculation Examination. School Certificate Examination.

University of Bristol.—Matriculation Examination. School Certificate Examination.

University of Cambridge.—Senior Local Examination. Higher Local Examination. Previous Examination. General Examination.

College of Preceptors.—Senior Certificate Examination.

University of Dublin.—Any one of four specified examinations.

University of Durham.—First School Certificate Examination. Matriculation Examination.

Universities of Scotland.—Preliminary Examination in Arts, Medicine, or Science. Final Examination for LL.A. St. Andrews.

Intermediate Education Board for Ireland.—Senior or Middle Grade Examination. Leaving Certificate Examination.

Educational Institute of Scotland.—Medical Preliminary Examination.

National University of Ireland.—Matriculation Examination.

University of London.—Matriculation Examination. Senior School Examination. General School Examination.

University of Oxford.—Senior Local Examination. Higher Local Examination. Responsions. Moderations.

Oxford and Cambridge Schools Examination.—Higher or School Certificate Examination.

Scottish Education Department.—The intermediate Certificate or Leaving Certificate Examination.

Central Welsh Board.—Senior Certificate Examination.
University of Wales.—Matriculation Examination.

English Board of Education.—First School examination certificate to include a "pass with credit" in English, and in one language in Group II or in mathematics, or mechanics, or physics, or chemistry or botany in Group III.

If a student has passed an entrance examination of any other body not referred to in the above list he should submit the certificate to the Registrar of the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1. The list of accepted certificates covers the Empire's universities, so that the conditions practically apply only to foreign institutions. It may generally be said that two certificates to cover the whole examination are alone accepted. If the student has not already passed one of the examinations his apprenticeship is of no value until he has acquired the necessary certificate. The favourite examinations for pharmacy students are the certificate of the College of Preceptors, London, and the professional preliminary examination of the Educational Institute of Scotland.

THE COLLEGE OF PRECEPTORS, Bloomsbury Square, London, W.C.1, holds examinations for preliminary certificates four times a year at local centres, a list of which is issued two months before each examination. Entry forms, obtainable from the secretary of the College, must be filled up and returned six weeks before the day appointed for the examination. On the form the candidate indicates the subjects in which he desires to be examined, those required for pharmaceutical students being mentioned at the beginning of this section. The fees are best sent with the entry forms, but, if not, must be paid twenty-eight days before the examination begins. Candidates should obtain the regulations for examinations (post free) from the secretary of the College, as the books to be studied in some of the subjects vary from year to year. A complete set of papers at previous examinations can be obtained from the College at 2s. 2d. post free.

EDUCATIONAL INSTITUTE OF SCOTLAND (Registrar's Office, 47 Moray Place, Edinburgh) holds an examination four times a year in Edinburgh, Glasgow, Liverpool, London, and Dublin. The fee is £1 1s., and should be sent to the Registrar with the form of application duly filled in. Exemption can be claimed from subjects already passed on a Leaving certificate. The Institute issues a calendar giving the regulations, price 6d., and examination papers, price 1s., obtainable from the Registrar.

A certificate of having passed a preliminary examination complying with the conditions having been obtained, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1, accompanied by a fee of two guineas, the student being then registered as an "apprentice or student."

Registration is insufficient in itself, articles of pupilage must be taken up and filed, copies of which can be obtained from the Registrar at the same time. Apprenticeship may be served with a pharmacist, firm, or body corporate, or in an institution recognised by the Council of the Pharmaceutical Society, or in the laboratory of a wholesale house subject to the same approval. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. The student who chooses to follow the course mapped out for a pharmaceutical chemist will be required to serve 2,000 hours in a shop kept open for the retailing, compounding and dispensing of poisons or the dispensary of a hospital or similar institution approved for the purpose, or the laboratory of a wholesale house, and must also enter into appropriate articles of pupilage. In addition, a recognised course of study must be taken before the Preliminary Scientific examination can be undertaken, and consequently a further sequence in college for the Qualifying examination.

The following modifications in the Pharmaceutical Preliminary examinations apply to students until April 1, 1936. The certificate must show that the examination



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was passed at not more than two examinations of one board. The subjects are: A, English; B, mathematics (arithmetic, algebra, geometry); C, a language other than English; D, an additional language or one of the following subjects: Higher mathematics, chemistry, physics, botany, biology, geology. Before or after April 1, 1936, (a) a certificate of having passed the final examination for a degree of any university in Great Britain or any other approved by the Pharmaceutical Council; or (b) a certificate of matriculation or any other examination admitting to a course for a degree of any university in Great Britain or any other university approved by the Pharmaceutical Council will be recognised. The certificate must include mathematics.

A person over twenty-five years of age may apply to be admitted to a special preliminary examination; he must furnish such particulars of his education as the Council of the Society may require. Fee, including registration as apprentice or student, £4 4s.

The Technical Examination

The Board of Examiners sits in London and Edinburgh in January, April, July and October for the purpose of conducting the statutory practical and (in two subjects) oral examinations. Prior to these times the written portion of the examinations must be taken at the appropriate centres. For the Pharmaceutical Chemist examination the Board sits in January and July only. The first part includes botany, chemistry and physics, and is called the Preliminary Scientific, the second pharmacognosy, pharmacy, pharmaceutical chemistry, dispensing and forensic pharmacy. Its specific name is the Chemist and Druggist Qualifying examination. For the purpose of simplification the Pharmaceutical Chemist qualification is dealt with separately under that heading.

The Preliminary Scientific should be taken between the ages of eighteen and twenty-one; the Qualifying examination can only be taken after the age of twenty-one has been reached.

The fee payable for the Preliminary Scientific is six guineas, and the conditions are: The candidate must have spent the requisite number of hours in botany, chemistry and physics in an institution approved for the purpose by the Pharmaceutical Society's Council. If a candidate is referred in one subject only he may re-enter for that one only. Two "refers" are equivalent to a failure in all. The re-examination fee is £4 4s. A candidate who has failed to attend an examination at the appointed time must pay an additional fee of £2 2s. unless prior to the examination a medical certificate of unfitness is lodged with the Secretary of the Pharmaceutical Society.

Having passed each subject in the Preliminary Scientific and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate together with another fee of £12 12s., and the necessary declaration of having completed the conditions, on the prescribed form, to the Registrar. The examination is conducted on similar lines, and success in all subjects entitles the candidate to be registered as a chemist and druggist by examination.

All candidates have the choice of being examined in the practical portion of the examination in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form.

The Examination Syllabuses

The official syllabus of the Pharmaceutical Society for the Preliminary Scientific is set out, though examinations in lieu of this may be taken in approved institutions.

Preliminary Scientific

BOTANY

Morphology, including anatomy. The external form of plants: Thallus, root, stem, leaf. The distinguishing

features and commoner modifications of these structures. Buds and vernation. Principles of branching and different kinds of branch systems. Phyllotaxis and branching. Inflorescence, flower, fruit. Pollination. Self and cross fertilisation. The formation of the seed. Germination. A general acquaintance with the elements of plant anatomy; the vegetable cell (tissues, e.g., meristematic, epidermal, fundamental and vascular). The characteristic anatomical features of roots, stems and leaves of flowering plants and ferns. The methods of increase in thickness of stems and roots, and the characters of primary and secondary tissues.

The elements of physiology. The nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—e.g., light, gravity, etc. Sexual and asexual reproduction.

A good pocket lens and a handy guide like "Pharmaceutical Botany" (C. & D. Offices) is one of the best introductions to a practical study in botany. Animal life is not needed save to those who are studying biology, but plant life offers many of the same principles; and though it might almost be called "still" life, it provides many an answer to questions in the principles of physiology. Already we find there is a move to bring elements of animal physiology under this subject, though the name would be changed so as to embrace it. It certainly helps in making botany interesting to be aware of the principles of physiology. Botany is a fascinating study, and plant-cell life a revelation of what mobility brings into the organism in its food search. It means better understanding of life; for this, botany is intensely interesting, fundamental and easily studied. In an examination where an examiner can test one's accuracy, it should become a reality of observation and expression. It is said the practical work of the candidates in the interpretation of objects of morphological interest is still very weak. This remark emphasises the points we have been making for years. Practical work with the cultivation of the observation faculties coupled with adequate expression in practice and in words renders botany a fascinating subject. Field botany is still extremely useful, and possesses a charm all its own. If pharmaceutical students could get this zest, they would never fail to satisfy the examiners. Botany is a living subject, and the student who appreciates that is on the sure way to success.

Classification.—A general knowledge of the chief divisions of the vegetable kingdom, including a special study of the plants and families named.

THALLOPHYTA.

Algae :—*Spirogyra*, *fucus*.

Fungi :—*Agaricus*, *saccharomyces*, *bacillus*.

BRYOPHYTA.

Funaria and *Pellia*.

PTERIDOPHYTA.

Dryopteris felix-mas.

SPERMOPHYTA.

Gymnospermae.—*Pinus*, with only the general external features of *Cycas* and *Taxus*.

Angiosperma.

Dicotyledones :—*Ranunculaceæ*, *Cruciferae*, *Leguminosæ*, *Umbelliferae*, *Compositæ*, *Scrophulariacæ*, *Labiatae*, *Solanacæ*, *Salicaceæ*.

Monocotyledones :—*Graminaceæ*, *Liliaceæ*.

Practical Examination.—To dissect, examine and describe any plants or parts of plants, and to refer to their systematic position any plants belonging to the above-named families. To prepare for the microscope and describe sections illustrating the anatomy mentioned above, and to bring to the examination his original laboratory notebooks.

CHEMISTRY

An elementary knowledge is required of the following subjects:—

(a) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical

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combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulas and nomenclature; valency; the distinction between metals and non-metals, and the periodic classification of the elements. (b) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide, chlorine, bromine and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid, nitrogen, ammonia and ammonium compounds, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus, silicon, silica, boron, boric acid. (c) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual method of extracting and the chief properties of the undermentioned metals, also the modes of preparation, properties, adulterations and contaminations of their principal compounds: Potassium, sodium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenic, antimony, tin, copper, bismuth, lead, silver, mercury, gold and platinum. (d) Carbon, its oxides, methane, ethylene and acetylene. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulae. The candidate is expected to solve simple problems relating to the weight and volume under different conditions of temperature and pressure of elements and compounds concerned in chemical reactions.

Practical Examinations.—To exhibit a practical acquaintance with the methods of preparing the more important inorganic substances. To identify by chemical tests the more important non-metallic elements and their compounds, as well as the metals and salts indicated in the foregoing list. To analyse a mixture containing not more than two basic and two inorganic acid radicles. To understand the principles of volumetric analysis, and to prepare and standardise, and use volumetric solutions of inorganic acids, salts, alkalies, potassium permanganate, and silver nitrate. The candidate will be required to bring to the practical examination his original laboratory notebooks for inspection.

Chemistry as a practical subject can only be learned in the laboratory. Lectures indicate the way, and the demonstrator should be the guide in teaching the student to observe rules and method in order to get correct results. Chemistry is an exact science, and requires exactitude in its treatment. Only by absorbing this idea into his being can the future pharmacist hope to be successful in dealing with the many problems that will accrue to him. The examination consists of a written paper of eight questions of which only six must be answered, and it is safe to say those six questions require clear thinking to answer. Close scrutiny of many examination papers shows that the art of expression of thoughts in writing so that the reader easily understands rather than struggles to fathom a meaning is not a pharmaceutical accomplishment. At the same time, much can be acquired in the way of expression by taking the questions set at previous examinations, writing out the suitable answers and comparing with the text-book. A critical comparison and condensation of replies into direct statement will do much towards acquiring a style in this as well as in cognate subjects. Writing out and allowing correction by a person with authority based on knowledge should make for exactness and lucidity. The examiners continue to regret that a small minority enter for the examination when they should not have done so owing to insufficient training. The suggested new authority for examiners deals with the question of failures in all subjects, and would give to them the power to prescribe a further period of collegiate study. It is chemistry which was the foundation of this suggestion. At the same time much improvement is shown in the knowledge of this subject, which is gratifying to those who have been trying to guide candidates during the past years in the right direction.

Notebooks are necessary and are insisted upon in all schools; but it is not wise to use a notebook as though it was for copied matter. The object of a notebook is to

record the experiments made or the tests applied, and state simply the conclusions reached. It may be such a record shows many mistakes, but no student should be ashamed of this unless the mistakes are constantly repeated. The student who can learn from mistakes how to do the thing rightly is on the pathway to success.

PHYSICS

Candidates are required to possess an elementary knowledge of:—

(a) Units; mass; weight; the balance, force, energy and work; levers and pulleys; gravity; centre of gravity; distinctions between solids, liquids and gases; transmission of pressure in liquids; water-pumps; the siphon; Boyle's law; atmospheric pressure; barometers; air-pumps; diffusion; dialysis; specific gravity; vapour density.

(b) Temperature thermometry; changes in volume of solids, liquids and gases, with alterations of temperature; quantity of heat; specific heat; change of state; latent heat; boiling and freezing points; vapour pressure.

(c) Propagation of light; laws of reflection and refraction; photometry; simple properties of mirrors, lenses and prisms; the eye as an optical instrument; the principles of the correction of errors of vision by means of lenses.

(d) Simple properties of magnets; simple phenomena of static electricity; electric currents; primary and secondary cells; the magnetic chemical and heating effects of currents; Ohm's law.

Practical Examination.—To perform simple experiments, solve simple problems, and to show a knowledge of the construction and use of physical apparatus, so as to illustrate the subjects detailed above. The candidates' original laboratory notebooks will be required.

The examination in physics consists of a written paper of three hours, covering a choice of seven questions from ten set, and two hours' practical manipulation and display of technical knowledge to the satisfaction of the examiners. The introduction of professional examiners in this subject raised the standard considerably. The teaching in this subject has wonderfully improved; the examination, from the time it went over to the present system, has been a guide and help in placing physics on a sound basis. At a recent examination we were informed that the action of the examiners and reaction of the teachers and examinees has placed this subject now on a rational and satisfactory basis. Indeed, it is affirmed it forms now one of the most pleasing features in the constructive development for a chemist.

EXTERNAL EXAMINATIONS IN PHARMACY

Apart from the examinations of the Pharmaceutical Society's examiners as set out in the above syllabus, there is a proviso for the acceptance of certificates in lieu of the Preliminary Scientific. They are: (1) The Final or Intermediate examination of any University in England and Wales, or equivalent examination in a Scottish University approved by the Pharmaceutical Council. (2) The Higher School Certificate examination conducted by an examining body approved by the Board of Education for subjects taken as principal subjects. The fee on acceptance of these certificates is £2 2s., and subsequently the same regulations apply as to the Pharmaceutical Society's examinations.

Qualifying Examinations

PHARMACOGNOSY

The details of the syllabus are as follows:—

To recognise specimens of crude drugs mentioned in the British Pharmacopoeia or in the annexed list; to be acquainted with their botanical, zoological and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter so far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopeial tests or processes of assay applied to crude drugs or their official products.

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Agar-agar	Elaterium	Pilocarpi microphylli Folia
Alkanna Radix	Eucalypti Folia	Pimenta
Althea Radix	Euphorbium	Piper longum
Amomi Melegueta Semina	Foeni-graci Semina	Piper nigrum
Areca Semina	Fucus vesiculosus	Pix Burgundica
Arnicæ Rhizoma	Galbanum	Quercus Cortex
Cacao Semina	Guarana	Rhamni Frangulae Cortex
Cambogia	Guttapercha	Sabinae Cacumina
Canella Cortex	Hellebori nigri Rhizoma	Sandaraca
Calendulae Flores	Hyoscyami Semina	Sanguinariae Rhizoma
Cantharis	Ignatii Semina	Sanguis Draconis
Cassia Cortex	Inulae Radix	Sarsæ Radix
Cetaria Islandica	Iridis Rhizoma	Scammonium
Chondrus crispus	Lacca	Sinapis Albæ Semina
Chrysanthemi cinerariaefolii Flores	Lauri Fructus	Sinapis Nigræ Semina
Cimicifuga Rhizoma	Lupulus	Stramonii Semina
Cocæ Folia	Lycopodium	Sumbul Radix
Coccil Indicus	Manna	Tonæ Semina
Conii Fructus	Mastiche	Ulmi fulvæ Cortex
Convallariae Flores	Moschus	Vanillae Fructus
Crocus	Mylabris	Veratri albi Rhizoma
Cumini Fructus	Olibanum	
Cydoniæ Semina	Papaver Capsulae	
	Physostigmatis Semina	

The candidate is also required to recognise any of the plants in the following list:—

Aconitum Napellus	Digitalis purpurea	Pinus sylvestris
Althaea officinalis	Dryopteria Filix-mas	Prunus Laurocerasus
Anthemis nobilis	Fœniculum capillaceum	Quercus Robur
Atropa Belladonna	Hordeum distichon	Rosa canina
Avena sativa	Hyoscyamus niger	Rosmarinus officinalis
Brassica alba	Juniperus communis	Ruta graveolens
Brassica sinapioides	Juniperus Sabina	Salix alba
Bryonia dioica	Lavandula vera	Sambucus nigra
Cochlearia Armoracia	Matricaria	Solanum Dulcamara
Colchicum autumnale	Chamomilla	Taraxacum officinale
Conium maculatum	Mentha piperita	Taxus baccata
Cytisus Scoparius	Mentha Pulegium	Triticum vulgare
Daphne Laureola	Mentha viridis	Ulmus campestris
Daphne Mezereum	Ceananthe crocata	Valeriana officinalis
Datura Stramonium	Papaver Rhœas	
	Papaver somniferum	

Though the collection of crude drugs by the student is seldom undertaken now, the candidates have fine collections at the various colleges, and recognition of specimens is usually well done. Mere recognition is of comparatively small value, but practical tests to detect certain elements in drugs become of greater value. In the passing over from the old system to that now prevailing considerable doubt was raised as to the true value of practical testing; but the years that have passed since the introduction have convinced even the doubters that it was a real advance. In no subject better than in drugs is it exemplified that knowledge of material breeds confidence. The candidate is expected to apply certain diagnostic tests to those drugs and powders easily responsive and to characterise with greater exactitude certain definable drugs. The written paper allows three hours for six questions out of eight. The range covers writing out the characteristics of a specified drug and frequently giving sketches to illustrate the answer. Methods of collection and storing and a knowledge of constituents are required. The oral allowed a succession of interrogations, but for all practical purposes this option is extinct. The margin of error is lessened, and the candidate is less able to spread himself in trying to recover from defective observation. The practical work consists of the recognition of half a dozen or more specimens; the answers are written, together with such other information as is requested. Diagnostic tests for powdered drugs and the use of the microscope for the identification of well-defined powders are required. There are satisfactory signs that an appreciation of the subject and its value has been achieved.

PHARMACY

I. *Pharmacy (General).*—Operations requiring the use of heat. Evaporation, with particular reference to the pre-

paration of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature and pressure upon the rate of evaporation; water, steam, and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparation illustrating the various kinds of distillation, apparatus employed, the retort and receiver still and worm. Liebig's condenser, principles on which they are constructed and used. The principles of sterilisation. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders small crystals, scales, etc. Filtration objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, etc., screw, hydraulic and other presses. Solution: its nature, solvent power of various menstrua, influences of (a) temperature; (b) state of division of the substance to be dissolved; (c) time; (d) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation, and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids. The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenical preparations are made, and the principles on which they are based.

The candidate will be required to read without abbreviation autograph Latin prescriptions, translate them into English, understand the grammatical construction, and render a literal as well as an appropriate translation of the directions for use; to detect errors, discover unusual doses, and have a general knowledge of posology; to calculate percentages and other quantities occurring in prescriptions.

II *Practical Pharmacy and Dispensing.*—To perform such operations of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), scale preparations, solutions, spirits, suppositories, syrups, tinctures, vinegars, waters and wines.

To compound and dispense medicines as prescribed; to write the directions in concise language and in a neat and distinct handwriting; to finish and properly direct each package, and to bring original laboratory notebooks.

The examination in pharmacy consists of a three-hours' written paper divided into two parts. The first part consists of four questions, all of which must be attempted; two out of part two, in which four further questions are set out, must also be answered. Analysis of the papers set shows that a student must be able to state how particular galenicals are prepared, and to contrast methods, giving where possible the reasons for variations and simple calculations in adjustments of strength, to show a knowledge accompanied by an annotated sketch of some piece of apparatus and a knowledge of the uses of extractives. As this subject is probably the most important in the examination, care is needed in the acquisition of accurate knowledge and skill. The number of hours in shop training should be considered as practical pharmacy. There are very few places where such operations as are necessary cannot be performed in spite of the supposed difficulties. It is an easy thing to say that economic conditions exclude practical pharmacy from the shop and leave only dispensing, but that is not quite a true statement. Prescriptions not infrequently present real problems in practical pharmacy, and the apprentice can lay a sure foundation for future success if he accepts those

Educational Information

problems as something to overcome rather than shirks them because they are troublesome.

Careful analysis of results in the pharmacy examination in dispensing shows failure to resolve itself into two main causes, casual errors and faulty training. Presence of mind and the sense of awareness in what one is doing is the key to overcome casual errors. To double the amount of poison in calculation is fatal to a success more surely than it might be in actual life. Casual mistakes are too frequent in the examination room, and there is no reason why they should occur. Constant repetition of processes will not save the dispenser; he must practise the art of concentration, know his job and cut out all mind wandering. A high percentage usually passes in theory, but a smaller one in practical. The standard is high and naturally so, and the examiners only appear to moan over the reading and interpretation of prescriptions. It has been suggested that oral should be eliminated in the new syllabus now being debated, but wiser counsels have prevailed. Some oral in this fundamental requisite of pharmaceutical training is a safeguard for the candidate which should under no consideration be renounced.

PHARMACEUTICAL CHEMISTRY

To have a general knowledge of the preparation, principal properties, and reactions of the following:—Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalic acid, methyl and ethyl alcohols, acetone, formic and acetic aldehydes and acids, chloral hydrate, chloroform, iodoform, ether, ethyl acetate, acetamide, aloin, olein acids, soaps, glycerin, lactic acid, citric and tartaric acids, sucrose, dextrose, lactose, starch, salicin, urea, simple urethanes, and ureides. Benzene, phenol, picric acid, phenolphthalein, nitro-benzene, aniline, acetanilide, benzoic acid, salicylic acid, acetylsalicylic acid, salol, gallic acid, tannic acid.

To have a general knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia, and such of the organic compounds mentioned above as are included in the British Pharmacopœia, and the purity methods by which the purity of these substances is determined.

Practical Examination

To identify by chemical tests the following organic compounds:—Cyanides, oxalates, acetates, tartrates, citrates, benzoates, salicylates, starch, sucrose, dextrose, lactose, salicin, cocaine, quinine, morphine, strychnine, and their salts; methyl alcohol, ethyl alcohol, acetone, formaldehyde, glycerin, chloroform, phenol. To detect and identify the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia and in such of the organic compounds mentioned in the list of substances for identification as are included in the British Pharmacopœia. To perform those volumetric determinations and those requiring the use of a nitrometer which are described in the British Pharmacopœia. To have a practical acquaintance with the methods of preparing the more important inorganic substances, and also the following organic compounds:—Ether, chloroform, ethyl nitrate, hydrocyanic acid, acetanilide and nitro-benzene, so that he may be able to explain to the examiner the operations

involved in their preparation, and, if called upon, to perform the operations or certain stages of them himself.

To determine quantitatively the total alkaloids in cinchona bark and its official preparations, and in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture, any of the above alkaloids in any other preparations by methods involving principles similar to the above, and the resin in tincture of jalap.

Candidates may consult the British Pharmacopœia and the British Pharmaceutical Codex, but the necessary information is now given on the paper set, so that it resolves itself into a question of interpretation in practical skill of the methods set out.

The candidate is required to bring to the practical examination his original laboratory notebooks for inspection.

Pharmaceutical chemistry as a written paper is of three hours' duration, in two parts of four questions; not more than three out of each part but only five in all must be attempted.

Questions in pharmaceutical chemistry bear largely on the British Pharmacopœia. In the past the criticism has usually been that candidates have kept to simple things within the printed word and overlooked principles involved. The new Pharmacopœia opened out a wider phase for this subject, and the records from the examiners provide interesting reading. It cannot be said that the 1932 Pharmacopœia provided any surprises. The critic finds much to wonder at in the reaction of both examiners and examinees to the development shown in presentation of the B.P.; it might easily have resulted in greater differences of results, but conservatism has prevailed. The subject of pharmaceutical chemistry has shown no revolutionary changes. It is as well for students to move even more slowly in development than teachers. At the same time greater progress is much more likely; and if that progress is going to be practical and not theoretical, the student is bound to find it more satisfactory.

FORENSIC PHARMACY

The candidate will be required to possess such information concerning the following enactments as is contained in the pamphlet, "Forensic Pharmacy," published by the Pharmaceutical Press:—The Pharmacy Acts, the Arsenic Act, the National Health Insurance Act, the Dangerous Drugs Acts and Regulations, Apothecaries Act, Medicine Stamp Act, Shops Act (sections dealing with the sale of medicines), Weights and Measures Act, Protection of Animals Act, Sale of Food and Drugs Acts, Registration of Business Names Acts, Venereal Disease Act, and the relevant sections of the Acts relating to the use of stills, the sale of spirits (including methylated spirit, medicated wines), storage and sale of explosives or inflammable substances, sale of abortifacients.

Forensic pharmacy remains an unsatisfactory subject, and no one is keen enough to see what is of practical utility. The new poisons list will not come in for another year, so the questions will still savour of a farce.

Syllabus for Chemist & Druggist Examinations

(IN BRIEF)

Preliminary Scientific

BOTANY

Morphology, including Anatomical Structure; Physiology, Reproduction; Physical Effects of Light and Gravity, classification, dissection and description of plants within specified classes.

CHEMISTRY

Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

PRACTICAL CHEMISTRY

Analysis of a salt containing not more than two Metals and two Acid Radicals; Identification and Knowledge of specified metals and salts; Principles of Volumetric Analysis and standardisation of solutions.

PHYSICS

Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity, Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: Reflection and Refraction; Correction of Vision; Magnets: Static and Current Electricity; Primary and Secondary Cells.

Qualifying

PHARMACOGNOSY

Pharmacopœial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

PHARMACY

Laboratory Methods and Appliances; Preparation and Production of Galenicals; Knowledge of Assay; Sterilisation; Dispensing and Prescription Reading and Translation.

PHARMACEUTICAL CHEMISTRY

Preparation and properties of specified medicinal organic compounds. Pharmacopœial test for impurities, assay, and volumetric determinations.

FORENSIC PHARMACY

Knowledge of Schedules, Conditions and Precautions of Sales of Poisons, and Laws Affecting the Keeping of Open Shop.



Educational Information

The subject should be a really "live" one and full of interest. The old syllabus remains until official displacement is announced, so candidates must be aware of the subject of poisons; and besides the Dangerous Drugs Card there are the C. & D. cards Nos. 1 and 2, which summarise the present position. The C. & D. Diary, 1929, contained a forensic exposition of the laws affecting pharmacy; and when the new Act finally comes into force a full exposition will be made.

Summary of Examination Fees

Apart from the fee for collegiate courses, the following are payable by pharmacy students:—

Registration as student, £2 2s.

Preliminary Scientific, £6 6s.

Re-examination in case of failure, £4 4s.; a person who has failed to attend, £2 2s.

Chemist and Druggist Qualifying examination, £12 12s.

Re-examination in case of failure, £6 6s.; a person who has failed to attend, £3 3s.

Those about to enter the calling should be informed as to the conditions for a chemist and druggist qualification, and under competent advice, parents and guardians should weigh carefully the advantages and disadvantages of the method of procedure. The conditions of the chemist and druggist qualification are dealt with under the appropriate heading. Two ways are possible for the pharmaceutical chemist qualification, one through the examinations of the Pharmaceutical Society and the other through the University of London or any other University which may later be recognised. The University training and examinations include both internal and external students.

In the case of the pharmaceutical chemist there is a change in the times of the examination, January and July being substituted for April and July. The entrance examinations are the same for those of the chemist and druggist qualification, and the same applies to the Preliminary Scientific. At this point a decision must be made for the passing from that of a chemist and druggist to a pharmaceutical chemist qualification if it comes as an afterthought. A candidate must be twenty-one years of age and supply the usual proofs. The hours in an open shop or recognised institution are 2,000. The hours for studying at college are 1,600, made up by 620 in pharmacy, 270 in pharmacognosy, 440 in chemistry, and 270 in botany. The examination is in botany, chemistry, pharmacognosy, pharmacy (including the translation and dispensing of Latin prescriptions) and forensic pharmacy. The conditions of failure are the same as in the other examination, with this addition: If the standard required for the pharmaceutical chemist qualification is not reached, but the work done, in the opinion of the board of examiners, reaches the chemist and druggist standard, a certificate for that qualification may be awarded. A chemist and druggist who desires to go further will be entitled to enter for the pharmaceutical chemist qualification on an additional curriculum of 1,060 hours, including 240 in pharmacy, 110 in pharmacognosy, 420 in chemistry, and 290 in botany; but he will be excused the examination relating to translation and dispensing of prescriptions and forensic pharmacy. Articles of pupilage apply equally to students for the pharmaceutical qualification, the hours being 2,000. The syllabus is as follows:—

APPENDIX 5

SYLLABUS FOR THE PHARMACEUTICAL CHEMIST QUALIFYING EXAMINATION

Although the study of French and German is not included in the systematic course of instruction required by Regulation 25 (b) of the Regulations for the Pharmaceutical Chemist Qualifying examination, questions will be set involving (1) the translation of passages in French and in

German, and (2) answers with regard to the subject matter thereof.*

BOTANY

consists of two Papers and a Practical Examination. (1) The principles of morphology: the special morphology of medicinal plants. (2) Anatomy and histology: the systematic anatomy of medicinal plants; microchemistry. (3) The distinguishing characters of the chief taxonomic divisions of plants, including the following groups and families, particular attention being directed to such plants as are of pharmacognostical importance:—

THALLOPHYTA.

Algæ: Cyanophyceæ, Chlorophyceæ, Diatomaceæ, Phæophyceæ, Rhodophyceæ.

Fungi: Phycomycetes, Ascomycetes, Basidomycetes, Lichenes, Bacteria.

PTERIDOPHYTA.

Lycopodiina :—Lycopodiaceæ.

Filicina :—Polypodiaceæ.

Equisetina.

SPERMOPHYTA.

Gymnospermae :—Coniferæ.

Angiospernae.

Monocotyledones :—Graminaceæ, Araceæ, Liliaceæ, Amaryllidaceæ, Iridaceæ.

Dicotyledones : Salicaceæ, Fagaceæ, Ulmaceæ, Cannabaceæ (=Cannabioideæ), Polygonaceæ, Ranunculaceæ, Papaveraceæ, Cruciferæ, Rosaceæ, Leguminosæ, Rutaceæ, Euphorbiaceæ, Malvaceæ, Myrtaceæ, Umbelliferae, Ericaceæ, Gentianaceæ, Boraginaceæ, Labiatæ, Solanaceæ, Scrophulariaceæ, Rubiaceæ, Caprifoliaceæ, Valerianaceæ, Campanulaceæ, Compositeæ.

(4) The general principles of plant physiology with special reference to the processes of metabolism.

Practical Examination

To (1) examine, describe, dissect and make preparations, both macroscopic and microscopic, of plants or parts of plants included in the foregoing schedule; (2) refer to their appropriate systematic position plants or parts of plants comprised in the foregoing schedule; (3) identify British angiosperms by means of a flora; show a practical knowledge of the methods and apparatus used for demonstrating the main facts of the physiology of plants.

CHEMISTRY

consists of two Papers and a Practical Examination.

To have a general acquaintance with the five main divisions of the subject, viz.:—

(1) General Theoretical Chemistry; (2) Inorganic Chemistry; (3) Organic Chemistry; (4) Physical Chemistry; (5) History of Chemistry since the time of Boyle.

The candidate will be allowed to bring into the examination laboratory any one book on quantitative analysis provided that it does not contain any reference to qualitative analysis.

PHARMACOGNOSY

consists of two Papers and a Practical Examination.

To possess a general knowledge of the crude drugs of vegetable or animal origin described in the British Pharmacopœia, of their more important constituents and of their chief commercial varieties; to be acquainted with the methods commonly adopted in the microscopical examination of vegetable drugs, including the isolation and identification of the various tissues and cells; measurement; microchemical tests; and the means of examining fabrics used for surgical dressings.

Practical Examination

The candidate will be required to identify any crude drug of vegetable or animal origin described in the British Pharmacopœia; to demonstrate diagnostic characters ascertainable by means of a lens, or by dissections; to make a sketch and describe microscopical preparations of any organised vegetable drug contained in the British Pharmacopœia, either in the

* Candidates are recommended to read some books or papers in French and in German on the subjects of the examination. In all subjects the candidate is required to bring the original laboratory books signed by the teacher, which may show any original work done.

Educational Information

entire or powdered state; to point out distinctive histological characters in the same; to identify in the form of powder such as are commonly used in that condition, and to ascertain their freedom from admixture by comparison with authentic material.

PHARMACY

To show a general knowledge of the following, and a practical acquaintance with pharmaceutical apparatus and operations:—

Solution and the conditions affecting it; methods of determining solubility, the preparation of isotonic, colloidal and other solutions. Filtration, colation, clarification and decolorisation. Preparation of crystals and granules. Dialysis. Apparatus used and principles involved in the drying, disintegrating, powdering and sifting of crude drugs and in the processes of evaporation, distillation, sublimation, calcination and fusion; the application of these processes in pharmacy. Expression: recovery of residual liquids from tincture marcs. The principles of sterilisation; sterilisation of apparatus and materials. Preparation of aseptic and antiseptic dressings; determination of the proportion of wool and cotton in dressings made from the mixed fibres. Enzymes and their action in the manufacture and preservation of pharmaceutical preparations. An elementary knowledge of vaccines and serums and the methods by which they are prepared and standardised.

To possess a general knowledge of the chemistry of the organic and inorganic substances or compounds of the British Pharmacopœia, and also a general knowledge of the manufacture of the preparations of the British Pharmacopœia.

Practical Examination

To conduct the operations by which the preparations of the British Pharmacopœia are made; to dispense prescriptions, and to have a general knowledge of posology.

Qualitative and quantitative analysis with special reference to the tests and assay processes of the British Pharmacopœia by which the purity of chemical drugs is ascertained and by which the principal constituents of vegetable drugs and their preparations are determined.

FORENSIC PHARMACY

This is the same as set forth in the Chemist and Druggist Qualifying examination, and the remarks made in discussing the subject equally apply.

University Examinations in Pharmacy

LONDON

In order to be admitted to a degree of B. Pharm., London, either as an internal or external student, candidates must (1) matriculate in one of the ways provided by the regulations, (2) pass the Intermediate examination in science, (3) have followed an approved course of study under recognised teachers of the University and in approved institutions. The fee for each examination is £6 6s. Application for copies of the regulations should be made to the Academic Registrar, University of London, South Kensington, S.W.7, or for an external student to the External Registrar.

The Intermediate examination of the University for external and internal students is set in two papers and a "practical" in each subject. Chemistry includes methods which lead to the discovery of the composition of common natural materials; determination of molecular weights, chemical laws and processes. In the practical: Quantitative, gravimetric, and volumetric work. Notebooks must be available for inspection by the examiners.

In Physics: The properties of solids, liquids and gases; principles of heat, sound and light, and the properties of magnetism and electricity.

Botany: Characteristics of angiosperms, gymnosperms, and specified natural orders. Pteridophyta, bryophyta, algae and fungi, together with elementary physiology. In the practical will be included dissection and examination of parts of plants.

Zoology: The fundamental facts and laws, including specified types. General organisation of types, biological laws, structural phenomena, reproduction and diagnostic

characteristics of lower forms of life. In the practical: Parts of the animals selected will require description, and some dissection is expected.

Biology: This is an alternative subject to zoology. It includes the differences between living and non-living matter; cells, integration, differentiation and division of labour. Enzyme action, transformation of energy in living matter; nutrition, stimulus, response, movement, chemical co-ordination and general mechanisms. Reproduction; embryo and heredity. In the practical: Appropriate physiological experiments, dissection, microscopy and elementary embryology.

The B.Pharm. degree Final examination is the same for external as for internal students, covering botany, chemistry, pharmacognosy, and pharmacy, and is set out in the syllabus for the Pharmaceutical Chemist qualification, *minus* forensic pharmacy. The degree cannot be taken until three years after matriculation. Certain changes in subjects and methods of examination will come into force in 1937.

A degree granted by the University does not entitle to registration by the Pharmaceutical Society, but regulation 29 provides that any registered apprentice or student who has served the period of practical training and produces to the registrar a notification of having passed the Final examination for the degree of bachelor of pharmacy of the University of London, or a corresponding degree of any other University approved by the Pharmaceutical Society's Council, shall be deemed to have passed the Pharmaceutical Chemist Qualifying examination in the subjects set out on the final certificate, and shall be entitled to enter the examination of the Society in forensic pharmacy and, on passing, be entitled to registration.

MANCHESTER

In Manchester, for the B.Sc. (Pharm.) degree, candidates must first pass the University Matriculation examination or its equivalent, which examination should include mathematics and mechanics. They should then attend courses in chemistry, physics, botany and zoology, and present themselves for the Intermediate examination in these subjects at the end of the first year. Candidates who have offered mathematics in place of zoology attend a short three-months' course in zoology in the second year. Candidates before proceeding to the Final examination must present certificates of having attended satisfactorily during the second and third years approved courses in chemistry, botany, pharmacognosy, pharmaceutical chemistry, physiology, and short courses in bacteriology and in methods of biological assay. They must also present satisfactory evidence that they can read scientific literature in German by passing a language test in this subject. They are required to pass the Final examination in the subjects of botany and pharmacognosy, chemistry and pharmaceutical chemistry and in pharmaceutics. This degree is accepted by the Pharmaceutical Society in lieu of the Ph.C. Qualifying examination except in the subject of forensic pharmacy. The cost of a degree course varies with the subjects chosen and with the nature of the degree, but the average fees for an ordinary B.Sc. degree course amount to £42 a session. Full particulars may be obtained from the Pharmaceutical Department, University of Manchester.

GLASGOW

In Glasgow, candidates must first pass the Preliminary examination. In not less than three academic years they must attend courses of Instruction at the University or the Royal Technical College, and must have been "practically engaged in the operations of pharmacy." The regulations may be obtained from Jackson, Wylie & Co., 73 West George Street, Glasgow.

BELFAST

The Queen's University confers the degree of B.Sc. in Pharmaceutics. Students desiring further information should apply to the Registrar of the University.



Educational Information

Teaching Institutions

Schools and institutions are recognised by the Pharmaceutical Society in most parts of Great Britain, some for the Preliminary Scientific examination, and some for the Chemist and Druggist Qualifying and the Pharmaceutical Chemist Qualifying examinations. The following are the principal schools and institutions in question:—

ENGLAND AND WALES

LONDON

The College of the Pharmaceutical Society University of London

17 Bloomsbury Square, W.C.1

Dean: Professor J. H. Burn, M.A., M.D. University Readers: Katharine H. Coward, D.Sc. (biochemistry); W. H. Linnell, Ph.D., M.Sc., F.I.C., Ph.C. (pharmaceutical chemistry); T. E. Wallis, B.Sc., F.I.C., Ph.C. (pharmacognosy). Other members of the staff: Hilda M. Bruce, B.Sc.; F. J. Dyer, B.Sc., A.I.C., Ph.C.; B. W. Melhuish, B.Sc., A.I.C., Ph.C.; F. Wokes, B.Sc., F.I.C., Ph.C. The course for the Chemist and Druggist examination begins on October 3; fee for the course, £43 15s. The two years' course for the B.Pharm. and Pharmaceutical Chemist examination, arranged jointly with University College, London, begins on October 3; fee, £45 17s. for each year. The above fees include subscriptions to the Students' Association and the University of London Union. Students will be given special instruction in methods of sterilisation, in the preparation and testing of biological products, and in physiology. They will have opportunity to see the work of the pharmacological laboratories. A course of instruction for the examination for diploma in biochemical analysis will be given on two evenings weekly from October to April; fee, £10 10s. Inquiries should be addressed to the Dean.

Chelsea Polytechnic School of Pharmacy

Manresa Road, Chelsea, S.W.3

Principal: F. J. Harlow, M.B.E., Ph.D., B.Sc., A.R.C.S., F.Inst.P. Pharmaceutics: C. Morton, B.Sc., Ph.C., Head; F. R. Bateson, B.Pharm., Ph.C.; T. C. Denston, B.Pharm., Ph.C.; S. G. Stevenson, B.Pharm., B.Sc., F.I.C. Chemistry: C. Doree, M.A., D.Sc., F.I.C., Head; J. C. Crocker, M.A., D.Sc., F.I.C.; F. H. Lowe, M.Sc.; J. H. Skellon, B.Sc., M.Sc., A.I.C.; A. Hebdon, B.Sc. Physics: L. Lownds, Ph.D., B.Sc., F.Inst.P., Head; W. Mandell, Ph.D., M.Sc.; L. J. Freeman, Ph.D., A.R.C.Sc., D.I.C.; W. B. Medlam, B.Sc.; R. W. Pyne, B.Sc.; A. Venables, M.Sc. Biology: B. Barnes, D.Sc., Ph.D., F.L.S., Head; C. A. Ealand, M.A.; W. B. Turrill, D.Sc.; C. J. A. Berkeley, B.Sc.; C. C. Hentschel, M.Sc.; E. M. Brown, B.Sc.; M. E. Millner, M.Sc.; W. H. Newton, M.Sc., M.B., Ch.B.; A. M. Stratford, B.Sc. The School of Pharmacy includes modern and well-equipped laboratories for practical pharmacy, pharmacognosy, pharmaceutical chemistry, pharmaceutical research, and large-scale galenical manufacture. Day courses for the Preliminary Scientific, Chemist and Druggist, Pharmaceutical Chemist, and Bachelor of Pharmacy examinations commence on September 24; the fee for a full-time day course is £8 per term or £21 per session. An evening course equivalent to the first term of the full-time course for the Chemist and Druggist Qualifying examination has also been arranged with the approval of the Pharmaceutical Society, the fee being £3 per session. Matriculated students may attend B.Pharm. courses as internal or external students of the University of London. An approved evening course for the Diploma in Biochemical Analysis will be held under the direction of Dr. H. E. Archer, chemical pathologist to the West London Hospital; the fee for the course, which extends from September 25, 1934, to April 5, 1935, is £5 5s. A short evening course of nine lecture-demonstrations on sterilisation, vaccines and serums, and general hospital pharmacy will be given by Mr. H. Davis, general

B.Sc., A.I.C., Ph.C., pharmacist of University College Hospital. During the Lent term Mr. C. W. Mapleton, F.I.C., Ph.C. (Allen & Hanburys, Ltd.), will conduct an evening course of six lectures on pharmaceutical manufacturing processes. Prospectus free on application to the Secretary, Chelsea Polytechnic, S.W.3.

Gordon Hall School of Pharmacy for Women

Drayton House, Gordon Street, W.C.1

Principals: Miss E. S. Hooper, B.Sc., F.I.C., Ph.C., and Miss K. M. King, Ph.C. Courses of training in pharmacy and dispensing. Hours of instruction, 10-4.30 p.m. Fees, £26 5s. per session. Particulars from Principals. Telephone: Museum 3930.

London College of Pharmacy

361 Clapham Road, S.W.9

Staff: Irvine G. Rankin, B.Sc., Ph.C. (Principal), V. P. A. Gelli, B.Sc., P. M. Sully, B.Pharm., Ph.C. Nine, six and three months', also part-time, courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations. Fee, £10 10s. per term. Evening classes: Tuesday, Wednesday and Thursday. Courses of preparatory study by post can be taken by apprentices and juniors at any time before entering College. Large botanical garden.

Norwood Technical Institute

Knight's Hill, West Norwood, S.E.27

Principal: L. N. Coombs, B.Sc., A.I.C. Day and evening classes for Preliminary Scientific, inter B.Pharm., and pre-medical examinations. Classes in organic chemistry suitable for pharmacy students. Staff: Chemistry and physics, W. Gerrard, Ph.D., M.Sc., A.I.C.; physics, W. H. Weaver, B.Sc.; botany and biology, E. R. Spratt, D.Sc., F.I.S., F.I.H., A.K.C. Session opens, September 25. London fee from £1 for the session.

The South of England College of Pharmacy

186 Clapham Road, S.W.9

Principal: H. Lucas, Ph.C., F.C.S., assisted by a qualified staff of teachers. A six-months' course for Part I. Fee, 20 guineas, and a nine-months' course for Part II, fee 30 guineas; commence on October 4. The courses are independent and hours of instruction are 9.30 a.m.—5 p.m. daily. Revision courses for both parts are obtainable, fee, 10 guineas per term. A "once-a-week" class for Part I begins October 10, and will be held each Wednesday, 2-9 p.m. (junior and senior classes). Fee £2 2s. per term.

Wandsworth Technical Institute

High Street, Wandsworth, S.W.18

Day and evening classes in chemistry, physics and botany for Qualifying examination of Pharmaceutical Society. Sessional fee, 30s. (over twenty-one years of age); 15s. (under twenty-one).

West Ham Municipal College

Principal: T. C. Baillie, M.A., D.Sc., Head of Chemistry Department: G. Dean, M.A., D.Sc. Pharmacy and Materia Medica: W. A. Knight, Ph.C. Evening courses for the Preliminary Scientific examination, commencing September 24. Fees, 14s. to 28s. per session.

Westminster College of Pharmacy

190 Clapham Road, London, S.W.9

Founder: G. S. V. Wills. Principal: P. H. Woodnott, Ph.C., F.C.S., assisted by J. G. Everett, Ph.C., and staff. Tuition for Preliminary Scientific and Qualifying examinations. Revision course for September examination commenced on July 30. Fee, 21s. per week. The 1934-35 session commences on October 3, and arrangements are made for revision and six and nine months' courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations respectively. Part-



Educational Information

time classes for Preliminary Scientific examination are held together with preparatory and revision correspondence courses.

Wimbledon Technical College

Gladstone Road, S.W.19

Lecturers: F. C. Ray, M.A., Ph.D., A.I.C., C. T. Archer, M.Sc., D.I.C., F. A. Champion, B.Sc., W. L. Whiteley, B.Sc., R. W. B. Stephens, B.Sc., D.I.C. Classes for Preliminary Scientific examination. Session commences September 24, 1934.

Woolwich Polytechnic

Woolwich, S.E.18

Principal: E. Mallett, D.Sc., M.I.E.E., A.M.Inst.C.E., F.Inst.P. Head of Chemistry and Botany Department: A. I. Vogel, D.Sc., D.I.C., F.I.C. Lecturers: D. R. Chesterman, M.Sc., A.R.C.S., D.I.C., W. L. German, M.Sc., Ph.D. Head of Physics Department: T. B. Vinycomb, M.C., M.A. Lecturers: J. Poole, B.Sc., C. Dixon, B.Sc. The Polytechnic is approved by the Pharmaceutical Society for a part-time day course for the Preliminary Scientific examination. The first-year course will be held on Mondays and Tuesdays, 9 to 1 p.m., and the second-year course on Thursdays and Fridays, 9 to 1 p.m., and the laboratories will be open on Thursday afternoons from 2 to 5 p.m. for additional work. There is no fee for a part-time day course, but a charge of 10s. is made for loan of text-books and provision of stationery.

PROVINCES

Aberystwyth University College of Wales

Principal: Ifor L. Evans, M.A. (Cantab.). Courses in chemistry and botany adapted to the requirements of candidates for examinations of the Pharmaceutical Society. Prospectus from the Secretary.

Barnsley Technical College

Principal: D. Paton Grubb, B.Sc. (Edin.), M.Eng. (Sheff.). Chemistry Department: W. W. Reeve, B.Sc. (Lond.), F.I.C.; D. W. Milner, B.Sc. (Leeds); H. S. Walker, M.P.S.; W. G. White, B.Sc. (Lond.), A.M.I.E.E.; J. W. Marshall, B.Sc.; F. Holroyd, B.Sc. Session from September 17, 1934, to July 5, 1935. Affiliated to the University of Sheffield. Recognised for the Preliminary Scientific examination. Part-time course for apprentices in the district one whole day a week. Fee, £2 2s. the session. Additional evening instruction in chemistry and physics, and in botany on one afternoon a week.

Barrow-in-Furness Technical College

Lecturers.—Chemistry: T. Hopkins, Ph.D., F.I.C. Physics: G. Cole, B.Sc. Botany: (Vacant). Evening classes in chemistry, September to April. Fees: 7s. 6d. to 10s. Day and evening courses for apprentices, September to July. Fees: Course, including chemistry, physics and botany, £3 3s.

Birmingham (Aston) Technical College

Principal: Raymond R. Butler, M.Sc., F.I.C., F.C.S. Chemistry Lecturer: J. C. Hutton, B.Sc. Physics: W. B. Wynn, B.Sc. Fees: Part-time day, £1 to £1 10s. per session. Evening classes, 10s. 6d. Recognised for botany, chemistry and physics.

Birmingham Central Technical College

Principal: D. S. Anderson, Ph.D., B.Sc., M.I.Mech.E., M.I.A.E. Head of Pharmacy Department: E. G. Bryant, B.Sc., D.Pharm., Ph.C. Full-time courses are offered for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Qualifying examinations of the Pharmaceutical Society, and for the Intermediate Pharmacy and Final B.Pharm. examinations of the University of London. Part-time courses are also offered for the Preliminary Scientific and Intermediate examinations. Medals and prizes are awarded in

all the subjects of each course. Courses commence on September 24. Full particulars on application to the Principal, The Technical College, Suffolk Street, Birmingham, 1.

Birmingham (Handsworth) Technical College

Principal: A. Robson, B.Sc., B.Com., A.M.I.Mech.E. Physics: M. B. Falla, B.Sc.; E. A. Lees, A.R.C.S.; H. J. Roper, B.Sc.; A. P. Jones, M.Sc. Chemistry: J. S. Jennings, B.Sc.; W. H. Hardaker, M.Sc.; L. G. Beresford, B.Sc. Botany: W. H. Hardaker, M.Sc. Recognised for Preliminary Scientific examination. Special courses for apprentices, also for professional preliminary examinations. Fees: Evening—Chemistry, physics and botany, 11s. 6d. per session. Day—One half-day per week, £1 1s. per session; two half-days, £1 11s. per session; additional half-days, £1 per session. Students under eighteen years of age, reduced fee of £1 1s. per session for two half-days per week (additional half-days as above).

Bolton Municipal Technical College

Principal: J. W. Simpkin, M.Sc. Head of Chemical Department: T. M. Nightingale, B.Sc. Chemistry: F. Smith, B.Sc., R. Barlow, B.Sc., F. Slater, B.Sc., T. C. Calloway, Ph.D., B.Sc. J. Mackereath, B.Sc. Physics: J. W. Grime, B.Sc., J. Stafford, M.Sc. Botany: (Vacant). Recognised for Preliminary Scientific examination. Fees: Chemistry courses, 5s. to 15s. per session; pharmacy courses, £2 2s.

Bournemouth Municipal College

Principal: C. E. Walker, M.A., B.Sc. Lecturers—Chemistry: E. A. Seeley, Ph.D., A.I.C.; R. H. Nixon, A.I.C. Botany: Miss H. V. Davies, B.Sc. Physics: R. M. Clark, B.Sc., A.M.I.E.E.; G. H. Hamilton, B.A., B.Sc.; T. T. Smith, B.Sc.; A. Williamson, B.Sc. Recognised for Preliminary Scientific examination. Day classes, fee £6 6s. per term; reduced fees for part time. Evening classes.

Bradford Technical College

Principal: H. Richardson, M.Sc. Head of Department of Pharmacy: F. N. Appleyard, B.Sc. (London), Ph.C., F.I.C. Lecturer in Pharmacognosy: D. W. Shaw, B.Sc. (Birmingham), Ph.C. Lecturer in Pharmaceutical Chemistry: C. G. Lyons, M.A. (Cambridge), Ph.D. Lecturers in Pharmacy: H. N. Dale, B.Pharm., Ph.C., and J. W. Cooper, Ph.C. Demonstrator in Pharmacy: J. Jackson, B.Sc. (London), M.P.S. Lecturer on Vaccines and Serums: M. A. C. Buckell, M.B., B.S., D.P.H. Lecturer in Biochemistry: R. O. Girdwood, M.B., Ch.B. (Aberdeen). The College courses are recognised by the Pharmaceutical Society for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Qualifying examinations, and by the University of London for the B.Pharm. degree. Full and part-time courses are provided for the Assistants' examination of the Society of Apothecaries, and a recognised evening course for the diploma of the Pharmaceutical Society in biochemical analysis. Registration commences on September 17 for evening courses and on September 25 for day courses.

Brighton Technical College

Full-time courses for (a) the Preliminary Scientific, (b) the Chemist and Druggist Qualifying, (c) the Pharmaceutical Chemist Qualifying and Bachelor of Pharmacy examinations. Classes are held under the guidance of Mr. H. B. Mackie, Ph.C., B.Pharm., Head of the School of Pharmacy, assisted by Mr. E. R. Parken, B.Sc., Ph.D., Ph.C.; Miss Mary E. Stevens, B.Pharm., Ph.C., silver medallist; and the staffs of the Physics, Chemistry and Biology Departments. The fee for any day is £24 for a session or £9 per term. The Pharmacy Department includes separate laboratories for dispensing, pharmaceutical chemistry, galenical pharmacy, and pharmacognosy. An R. A. Cripps' exhibition of twenty guineas is open annually to apprentices and assistants to



Educational Information

pharmacists in Sussex, Kent, Surrey and Hants, who are qualified to proceed to the Chemist and Druggist or Pharmaceutical Chemist courses. By arrangement with the local associations of pharmacists, a part-time course extending over three years enables apprentices to prepare for the Preliminary Scientific examination, but intending apprentices are urged strongly to complete this examination before starting actual apprenticeship. Applications for admission to the College should be made as early as possible to the Principal.

Bristol Merchant Venturers' Technical College

Principal: Andrew Robertson, D.Sc.; Superintendent, W. A. Andrews, B.Sc., A.I.C. Head of Pharmacy Department: D. J. Williams, B.Sc., Ph.C. Lecturers in Pharmaceutics: W. Cooper, Ph.C., G. H. Moore, Ph.C., A.I.C. Lecturer in Botany: Miss E. E. M. Beer, B.Sc. Head of the Chemistry Department: W. A. Andrews, B.Sc., A.I.C. Lecturers in Chemistry: T. Malkin, Ph.D., A. Marsden, F.I.C., E. J. Riggs, B.Sc., H. J. Willavoys, B.Sc., A.I.C. Head of Physics Department: Professor D. Robertson, D.Sc., M.I.E.E. Lecturers in Physics: W. E. Palmer, B.Sc., H. J. Willavoys, B.Sc., A.I.C.

Cardiff Technical College

Principal: Charles Coles, O.B.E., B.Sc. Head of Welsh College of Pharmacy: R. Vernon Lloyd, B.Pharm., Ph.C. Lecturers in Pharmaceutics: J. M. Davies, Ph.C., L. L. Jones, Ph.C. Assistant Lecturers in Pharmacy: Wm. Sumner, Ph.C., and (to be appointed). Chemistry: H. B. Watson, D.Sc., F.I.C., E. A. Rudge, Ph.D., M.Sc., F.I.C., H. Aldred, M.Sc., P. H. Griffiths, B.Sc., J. F. J. Dippy, Ph.D. Pharmaceutical Chemistry: H. A. Perkin, Ph.C. Physics: W. S. Vernon, M.Sc., F.Inst.P., J. Webber, B.Sc., F.S.M.C.(Hons.), T. E. Williams, Ph.D., B.Sc. Botany: J. Mangam, M.A., F.R.C.Sc., Miss E. Melville, Ph.C. One-year day courses for Preliminary Scientific and Chemist and Druggist Qualifying examinations commence in October. Also two years' course for Pharmaceutical Chemist Qualifying examination, and three years' course for degree in pharmacy. Apothecaries' Hall Assistants' examination, one-year course. Fee (each course): October to July, £20. Part-time course for diploma in biochemical analysis (held at Welsh National School of Medicine): fee, £10 10s. Course in bacteriology for pharmacists: fee, £2 12s. 6d. Open scholarships (tenable for three years) are offered by the College Committee.

Darlington Technical College

Principal: J. W. Angles, M.Sc., M.I.Mech.E. Chemistry: A. J. Bishop, B.Sc., L. Peacock, B.Sc., and T. A. Tweddle. Evening pharmacy course. Fees: 20s. Recognised for Preliminary Scientific examination.

Derby Technical College

Principal: W. A. Richardson, B.A., D.Sc., B.Sc. (Eng.). Lecturers.—Chemistry: J. Yates, M.Sc., F.I.C., G. E. Pool, B.Sc., F.I.C., A. Walton, M.Sc., A.I.C. Physics: G. H. Broom, B.Sc., F. Record, B.Sc., W. D. Jones, B.Sc. Botany: W. B. Randles, B.Sc. Courses arranged in day and evening classes. Fees: Part-time day courses (one day per week and evening), £1 1s. per session inclusive. Evening classes, 11s. per session. Recognised for Preliminary Scientific examination.

Halifax Municipal Technical College

Principal: B. R. Heasman, M.Sc. (Lond.) A.I.C. Head of Chemistry Department: W. J. Stansfield, A.R.C.S., A.I.C., F.C.S. Assistants.—Chemistry: G. Sutcliffe, B.Sc., J. W. Turton, A.R.C.S., A.I.C. Botany: C. Fielding, Ph.C. Physics: A. R. Buttrey, B.Sc. Instruction (two sessions) for Preliminary Scientific examination. Fee, £1 10s. per session.

Harrogate Technical School

Principal: W. E. C. Jalland, M.Sc. Chemistry: W. Wallis, Inter. B.Sc. Physics: T. H. Lusher, B.Sc., and

F. R. Richardson, B.Sc. Botany: Rees Price, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. Fees: 15s. per session.

Huddersfield Technical College

Principal: J. F. Hudson, M.A., B.Sc. Full-time and part-time courses in subjects for Preliminary Scientific examination of the Pharmaceutical Society are held. Also part-time courses in bacteriology, pharmacy and materia medica and applied optics. Fee: full-time, £12 12s. a session; part-time course, £3 3s.

Hull Municipal Technical College

Head of Chemistry Department: L. Balmforth, B.Sc., F.I.C., assisted by eight lecturers. Classes in inorganic, organic and physical chemistry, physics, botany, materia medica, oil, paint and varnish manufacture. Courses in materia medica and dispensing for students who have already obtained Part I and wish to continue their studies before taking their final at the selected college.

Kingston-upon-Thames Technical College

Head of Pharmacy Department: H. P. Starck, M.A. (Cantab.), Hon. Natural Science Tripos C.T.D. Chemistry: Elementary inorganic and organic, P. B. Fletcher, M.Sc., A.I.C.; advanced inorganic and organic, H. P. Starck, M.A. (Cantab.), C.T.D. Physics: Elementary and advanced, J. J. Hedges, Ph.D., B.Sc.; elementary H. H. Hirst, M.Sc.; advanced, C. J. Rhodes, M.Sc., M.Ed., A.Inst.P. Botany: Elementary and advanced, Miss L. M. Cunningham, B.Sc. (Edin.); advanced, E. H. Ellis, B.Sc. Both day and evening courses have been arranged to prepare students for the examinations of the Pharmaceutical Society of Great Britain. Fee for session, £1 10s. Pharmaceutical chemistry is taken on Wednesday afternoons for all grades of students at an additional fee of £1 per session. Botany is taken on Thursday afternoons at an additional fee of 10s. per session.

Lancaster Storey Institute Technical College

Pure and Applied Chemistry Departments, Headmaster: F. H. Mould, B.Sc., A.R.C.Sc. Lecturers: S. Walton, B.Sc., Dr. Gedye, Ph.D., T. McQuillen, B.Sc., C. E. Lemin, B.Sc., P. Gillman, B.Sc., W. Knowles, B.Sc., J. Baty, B.Sc., E. L. Mills, B.Sc., H. Hempling, B.Sc., J. L. Harris, B.Sc., H. Lewty. Day and evening classes are recognised by the Society.

Leamington Technical School

Lecturers.—Physics: F. W. Onslow, B.Sc.; Chemistry: A. W. Wellings, M.Sc. Botany: C. G. C. Chesters, B.Sc., U.Sc. Recognised for Part I of Qualifying examination. Physics Friday. Chemistry Wednesday. Botany Monday.

Leeds College of Technology

Principal: J. H. Everett, B.Sc. Chemistry: R. Gawler, M.Sc., F.I.C., assisted by A. Taylor, M.Sc., A.I.C., H. E. Goodson, A.R.C.S., A.I.C., F. Crosland, B.Sc., H. J. Ewart, B.Sc., A.I.C., M. S. Fox, B.Sc., R. A. Hobley, B.Sc., J. H. Naylor, M.Sc., F.I.C., S. R. Stubbs, M.Sc., J. T. Thompson, M.Sc., F.I.C., G. O. Yorke, M.A. Physics: H. Teasdale, B.Sc., M.Ed., J. Croft, B.Sc., and L. Moore, M.Sc. Botany: Miss M. E. Malins, B.Sc., Rev. H. Parish, F.R.M.S. Day course in chemistry, physics and botany for the Preliminary Scientific examination. Day course in biology. Fee for full-time day course, £18 18s. per annum. Part-time day courses from £3 3s. per annum. Evening courses from 15s. to 30s. per session.

Leeds University

Courses of study for the Chemist and Druggist Qualifying examination and the Pharmaceutical Chemist examination. Fees: £31 10s. per session. (For further details see THE CHEMIST AND DRUGGIST, July 14, p. 50.)



Educational Information

Leicester College of Technology

Principal: L. W. Kershaw, B.Sc., A.M.Inst.C.E., F.G.S. Head of Department of Pharmacy: A. R. G. Chamings, B.Pharm., Ph.C. A special feature introduced into the work of the department is the scheme of collaboration with the Leicester Royal Infirmary—full-time students in the C. and D., Ph.C. and B.Pharm. courses spending a number of periods working in the dispensaries of this institution; and in addition Ph.C. and B.Pharm. students receive practical training in the preparation of vaccines, etc., in the Pathological Laboratory. Classes in business practice and serology have also been introduced into the C. and D. time-table, and evening courses are available without further fee (to all full-time students) in photography, surgical appliances, etc., first aid, dietetics and human physiology. A one-year course (which has proved very successful), for students for Ph.C. and B.Pharm., is provided for those who have passed the C. and D. examination (or reached C. and D. standard).

Leicester, The Wyggeston Grammar School

Headmaster: T. Kingdom, M.A. Staff—Chemistry: Alwyn Pickles, M.Sc. (Lond.), H. Garside, B.A. (Oxon). Physics: E. C. Cowell, B.Sc. (Lond.), D.I.C., J. R. Cottrill, B.A. (Cantab.). Botany: H. M. Lacey, M.A. (Cantab.). Recognised for Preliminary Scientific examination; three-term session from September to July. Fee, £18 18s. for the session.

Liverpool Municipal Technical School

Principal: R. R. Butler, M.Sc., F.I.C., F.C.S. Chemistry: A. E. Findlay, B.Sc., F.I.C., F. J. Smith, B.Sc., Ph.D., A.I.C., J. D. A. Johnson, B.Sc., Ph.D. (Lond.), and E. Jones, B.Sc., A.I.C. Physics: J. F. Shearer, M.A., Ph.D., B.Sc., and W. Creer, B.Sc. Botany: M. C. Pratt, M.Sc. Fees (three afternoon or evening classes weekly): £1 to £2. For the new session 1934-35 is the addition of part-time Preliminary Science courses for one full day per week on Wednesdays and Thursdays. A two-years' course is arranged for Part I examinations.

Liverpool School of Pharmacy

Principal: H. Humphreys Jones, F.I.C., F.C.S., Ph.C. Preparation for the Preliminary Scientific examination and Qualifying Chemist and Druggist examination of the Pharmaceutical Society. Six-months' and nine-months' courses respectively. Fees: £21 (six months) and £31 10s. (nine months). Also part-time classes for the Preliminary Scientific only on Tuesday evenings and Wednesday afternoons and evenings. This covers a period of two complete sessions. Part- and full-time classes commence early in October. Revision classes for both examinations are arranged.

Manchester College of Technology

Principal: B. Mouat Jones, D.S.O., M.A. Lecturers: O. R. Howell, B.Sc., Ph.D., D.Sc., F.I.C., R. J. Hughes, B.Sc., A.I.C., H. N. Mercer, M.A., Ph.D., D.I.C., H. P. Walmsley, D.Sc., Miss J. Duncan, B.Sc., Ph.C., W. O. Howarth, M.Sc. Complete course for Preliminary Scientific Qualifying examination given jointly with Botanical Department of University. A part-time (day) course extends over two years, and is also useful in preparing students for the Manchester, Fairchild and Leverhulme Scholarship competitions held in June.

Manchester University

Lecturers in Pharmaceutics: James Grier, M.Sc., Ph.C., H. Brindle, B.Sc., F.I.C., Ph.C., Miss Ivy Roberts, M.Sc., Ph.C., Miss J. Duncan, B.Sc., Ph.C. Courses for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations in Pharmaceutical Department commence in October; composition fees from £23 2s. to £31 10s. Degree courses in

pharmacy are available, also a part-time course in biochemical analysis for the Society's diploma.

Armstrong College, Newcastle-upon-Tyne, University of Durham

Pharmacy students admitted to classes in chemistry, physics and botany. Fees, £25-£30 per annum, according to the classes taken, registration fee, subscription to students' societies and university union, amounting to £5 13s. 6d. per annum.

Norwich Municipal Technical College

Principal: Henry Baker, M.Sc., Ph.D., A.M.I.C.E. Chemistry: W. W. Reed, M.Sc., F.I.C., F.R.M.S. Botany: J. E. Kimberley, M.Sc. Biology: H. J. Howard, F.L.S. Recognised for Preliminary Scientific examination. Combined day and evening courses. Session opens September 18. Fees, £1 to £1 10s. per session.

Nottingham University College

Head of School of Pharmacy: A. O. Bentley, Ph.C. Lecturers and Demonstrators: G. E. Trease, B.Pharm., Ph.C., H. A. Turner, Ph.C., J. C. Roberts, B.Sc., B.Pharm., Ph.C., A.I.C., H. H. Barber, B.Sc., Ph.D., F.I.C., A. W. Bull, B.Sc., B.Pharm., Ph.C. Full-time day course for Chemist and Druggist examination; fee £30. Two-year course for B.Pharm. and Ph.C. examinations; fee £31 10s. each session. Three days per week course for one year for Preliminary Scientific examination; fee £15. Course for diploma in biochemistry (four half-days per week); fee £10 10s. for two terms.

Oxford City Technical School

Department of Pure Science, Chemistry and Physics: J. S. Hill, M.C., M.A., B.Sc. Botany: H. Baker, M.A. Recognised for the Preliminary Scientific examination. Evening courses in chemistry, physics and botany, extending over three years. Inclusive fee per year, 30s.

Plymouth and Devonport Technical College

Principal: A. R. Boeree, M.A., B.Sc. (Oxon.), F.I.C. Physics: F. C. Marks, B.Sc., G. H. Lock. Chemistry: F. A. Royle, M.Sc., Ph.D., F.I.C., F.C.S., T. Thorne Barnes, B.Sc. Materia Medica and Pharmacy: A. H. Ware, Ph.C., V. Smith, M.Sc., A.I.C., Ph.C. Botany: Miss F. A. Stanbury, M.Sc., Miss D. E. Harbridge, B.Sc. Part-time courses for Preliminary Scientific examination held three afternoons or evenings each week. Fee, £4 per session. Full-day courses for registered students. Fees, £18 15s. to £25.

Portsmouth Municipal College

Principal: Leonard B. Benny, M.A. (Cantab.), B.A. (Lond.). Vice-Principal: W. H. Watson, M.Sc., A.R.C.S., F.C.S. Head of Pharmacy Department: F. Hemming, Ph.C., M.P.S., F.C.S. Lecturers—Pharmacy: N. Francis, Ph.C., M.P.S., Miss M. Wells, Ph.C., M.P.S. (sera and vaccines), J. A. D. Radcliffe, M.B., Ch.B. Chemistry: R. G. Austin, B.Sc., A.I.C., W. F. Andrews, M.Sc. Botany: Miss C. M. Gibson, B.Sc., Miss G. F. Selwood, B.Sc., Miss F. L. Beanland, M.Sc. Physics: A. T. Guinevan, B.Sc., J. Daley, B.Sc., A.R.C.S., D.I.C. Chemistry Demonstrator: N. St. Clair Jerome, B.Sc., B.Pharm. The College is an approved institution under the regulations of the Pharmaceutical Society and the London University. All classes commence on Monday, September 10, 1934. Fees, full-time courses, £15 15s. for Portsmouth residents, £21 for others, per session.

Preston, Harris Institute

Affiliated to Universities of Manchester and Liverpool. Tuition in chemistry, physics and botany. Session begins in September. Fees, £9 10s. per session of three subjects, or £3 3s. 4d. per term. One subject, £3 10s. per session, two £7. Recognised for Qualifying examination Part I.

Educational Information

Salford Royal Technical College

Principal: John A. Hartley. Recognised for Preliminary Scientific examination. Day courses and evening classes for pharmaceutical students in chemistry, botany and physics. Day-course fee: £3 3s. per term. Evening: 15s. to £1 5s.

Sheffield Central Commercial College

Principal: W. B. Marshman. Staff.—Chemistry: Percy Lord, B.Sc., Ellis Jackson, B.Sc., G. R. Davies, B.Sc. Physics: E. Shaw, B.Sc., J. Hiles, M.Sc., E. Ridder, M.Sc., J. Cross, A.Met., A.I.C. Botany: A. Burgess, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. The course extends over three years, the fee being £1 1s. annually.

Southampton University College

Professor of Chemistry: D. R. Boyd, D.Sc., Ph.D., F.I.C. Special facilities in chemistry department for pharmaceutical students. Tuition fees and further particulars of the courses from the Registrar.

Stockport College for Further Education

Part-time day courses for Preliminary Scientific examination. Classes for Chemist and Druggist Qualifying examination if sufficient students enter their names. Prizes awarded annually by the local branch of the Pharmaceutical Society. Principal, G. Wood, M.Sc.

Sunderland Technical College

Principal: E. R. Verity, B.Sc., A.R.C.Sc. Head of Pharmacy Department: Miss H. C. M. Winch, Ph.C., A.I.C. Head of Chemistry Department: W. S. Patterson, M.Sc., Ph.D., F.I.C. Full-time day courses recognised for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations and for the diploma in biochemistry. Recognised by the University of London for B.Pharm. degree. Fees: £20 per session for full-time course.

Swansea Municipal Technical College

Staff.—Chemistry: E. A. Tyler, M.A., F.I.C., W. B. Jones, Ph.C. Physics: Elfed Thomas, Ph.D., K. G. Hilditch, B.Sc., F.S.M.C. Botany: P. S. Jewell, M.A., A.I.C. Courses: Preparatory part-time day and evening (sessional fee, £1 1s.). Full-time nine months' course for Preliminary Scientific examination (sessional fee, £15 15s.). Session opens September 25.

Wigan and District Mining and Technical College

Principal: J. F. S. Ross, M.C., B.Sc., Ph.D. Head of Chemistry Department: E. B. Naylor, M.Sc., F.I.C. Lecturers: F. Briers, B.Sc., D.Phil., A.I.C., H. Crofts, M.Sc., A.I.C., A. Cooksey, B.Sc., F.I.C. Lecturer in botany and zoology: N. M. Blaikley, M.Sc. Full-time pharmaceutical course (fee, £10 10s.); part-time day course (£1 1s.). Recognised for Preliminary Scientific examination.

Wolverhampton and Staffordshire Technical College

Head of Chemistry Department: W. Regan, B.Sc. Lecturers in Chemistry: M. Schofield, M.A., B.Sc., L. R. Mernagh, B.Sc. Materia Medica and Pharmacy: J. M. Caley, M.P.S. Botany: G. D. Hogan, A.U.C.R., D. C. Line, B.Sc. Physics: W. R. Torrance, B.Sc., M. Schofield, M.A., B.Sc. Session, September to April, followed by short summer session.

SCOTLAND

Aberdeen, Robert Gordon's Technical Colleges

Chemistry: W. Maitland, D.Sc., R. Craven, B.Sc., A.R.C.S., A.I.C., John B. M. Cockopp, Ph.D., A.I.C., J. Lynch, B.Sc., Alice W. Stewart, B.Sc. Pharmacy: James E. Bowen, B.Sc., Ph.C., A.I.C., D. S. Rattray, Ph.C., Euphemia C. Barnett, B.Sc., John M. Croll, M.B., Ch.B., D.P.H. Physics: J. D. Stewart, M.A.,

John S. Morgan, M.A., G. O. Clark, M.A., B.Sc., James W. Collie, M.A., B.Sc. Day courses: Preliminary Scientific, Chemist and Druggist Qualifying, and Pharmaceutical Chemist Qualifying examinations, and Intermediate and Final examinations for the Degree of Bachelor of Pharmacy of the University of London, October 16, 1934, to June 30, 1935. Fee: Each course, £21. Evening Preliminary Scientific course over four years. Fees, 1st stage, £1; 2nd stage, £1 5s.; 3rd stage, £1 10s.; 4th stage, £1 15s.

Dundee Technical College and School of Art

Heads of Departments:—Botany and Pharmacy: D. McCall, B.Sc., Ph.D., Ph.C., F.L.S. Assistants: George H. Macmorran, Ph.C., and Miss Isabella S. McNicoll, B.Sc. Chemistry and Physics: C. W. Cochrane, D.S.O., B.Sc. Assistants: W. S. Liddle, B.Sc., and W. B. Proudfoot, B.Pharm., Ph.C. Students are prepared for all examinations of Pharmaceutical Society of Great Britain and for degree of B.Pharm. of London University. Classes begin September 24. Evening classes in Botany, chemistry and physics on September 10. Fees: Day classes, £22 1s.; evening classes, £1 to £1 10s. per session.

Edinburgh, Heriot-Watt College

Principal of College: J. Cameron Small, O.B.E., F.R.S.E. Professor of Chemistry: T. Slater Price, O.B.E., D.Sc., Ph.D., F.I.C., F.R.S. Lecturers.—Chemistry: James Sandilands, F.I.C., A.H.-W.C., J. W. Ingham, M.Sc., F.I.C., W. H. Craven, B.Sc., F.I.C., R. G. M. Dakers, Ph.D., B.Sc., F.I.C., A.H.-W.C., Hugh H. Campbell, B.Sc., A.I.C., A.H.-W.C., Hugh B. Nisbet, Ph.D., F.I.C., A.H.-W.C., Isaac A. Preece, M.Sc., Ph.D., A.I.C., Douglas R. Hudson, B.Sc. Physics: Head of Department: William Watson, M.A., B.Sc. Lecturers: John Milne, B.Sc., T. G. Malpas. Botany: Isaac A. Preece, M.Sc., Ph.D., A.I.C., Andrew Howison, M.A., B.Sc. Pharmaceutics: J. C. Henderson, Ph.C., and W. F. Martin, M.P.S., F.I.C., and demonstrators. Complete courses of instruction.

Edinburgh, The Royal Dispensary and School of Pharmacy

Principal: Eric Knott, Ph.C., F.C.S., assisted by a fully qualified and competent staff. Complete courses in the subjects of the Preliminary Scientific examination and the Chemist and Druggist Qualifying examination are provided in the day classes of this school. Fees: Preliminary Scientific examination, six months' course, £21; Qualifying Chemist and Druggist examination, nine months' course, £31 10s. Hours, 9 a.m. till 5 p.m. daily. Evening and part-time classes.

Glasgow Royal Technical College

Superintendent, and lecturer in botany: Professor David Ellis, D.Sc., Ph.D., F.R.S.E. Assistant lecturer in botany: Miss B. Lloyd, M.Sc., Ph.D. Lecturer in pharmacy and pharmacognosy: J. P. Todd, Ph.D., Ph.C. Lecturer: E. J. Schorn, A.I.C., Ph.C. Demonstrators: G. Rattray, Ph.C., G. R. Milne, Ph.C. Classes for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Qualifying examinations, and also for the degree of B.Sc. (Pharm.), with evening classes for the Preliminary Scientific examination, begin in September. Degree course, 90 guineas, in four annual instalments of 22½ guineas; other day courses, 20 guineas per annum.

Paisley Technical College

Principal: Lewis F. Richardson, D.Sc. (Lond.), F.R.S. Head of Chemistry Department: P. C. Austin, D.Sc., F.I.C. Lecturers.—Chemistry: John Armour, B.Sc. (Lond.), A.I.C., John R. Lockie, A.T.I., E. M. Dykes, B.Sc. (Lond.), A.I.C., A. R. Jamieson, B.Sc., F.I.C. Botany: Alex. C. MacLean, B.Sc. (Lond.), Lesley Robertson, B.Sc. Physics: J. Denholm, J. C. Young, B.Sc. (Lond.). Recognised for Preliminary Scientific examination. Day and evening classes.



Ireland—I. Free State

THE chief enactments governing the practice of pharmacy in the Irish Free State are the Pharmacy Act (Ireland), 1875, the Pharmacy Act (Ireland), 1875, Amendment Act, 1890, and the Sale of Poisons (Ireland) Act, 1870. Particulars of these Acts, so far as the sale of poisons is concerned, and of the Dangerous Drugs Act, 1920, are given in each annual issue of *The Chemist and Druggist Diary*. The Act of 1875 set up a class of qualified persons, pharmaceutical chemists, to keep open shop for retailing, dispensing and compounding poisons and medical prescriptions. The amending Act of 1890 brought into existence chemists and druggists and registered druggists on a statutory basis, and introduced a qualification for assistants to pharmaceutical chemists enabling them to transact the business of a shop during their employers' temporary absence. The Saorstat Eireann Juries Act, 1927, conferred on registered pharmaceutical chemists actually in business exemption from service on juries. The Irish Pharmacy Acts, 1875 and 1890, differ from the corresponding Acts for Great Britain in that mention is made of the subjects in which candidates for the Licentiate and the Registered Druggist qualification are to be examined—with the addition, in the earlier Act, of "such other subjects as may from time to time be prescribed by any regulations made in pursuance of this Act." The Registrar and Clerk to the Council of the Pharmaceutical Society of Ireland is Mr. James J. Kerr, P.C., M.P.S.I., 67 Lower Mount Street, Dublin.

Preliminary Examination

This examination must be passed prior to the service in pharmacy required by the Regulations for the Licence examination, unless such service has been commenced before January 1, 1907. The Preliminary examination has been suspended for a period of three years from January 10, 1933. The matriculation examination of the National University of Ireland will be accepted in lieu of the Preliminary examination provided that:—(1) A registration fee of £4 4s. shall be paid; (2) the certificate must show that the candidate has passed in Irish, English, Latin and mathematics; (3) on and after October 1, 1934, candidates must also pass in chemistry and botany.

Pharmaceutical Licence

The qualifying examination for pharmaceutical chemist in Ireland is that of Licentiate. The conditions to be fulfilled before entering upon the Pharmaceutical licence examinations are:—

(a) After preliminary registration the person must serve four years as an apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries in an open shop, and the candidate must spend the business day with his employer. (Provision is made for service with more than one employer, and, for those who have served four years with a chemist and druggist or registered druggist in Ireland two years' further service with a pharmaceutical chemist or an apothecary suffices.)

(b) Attend three-months' courses of lectures in theoretical chemistry and in botany and *materia medica*, and a three-months' course of practical chemistry (after the lectures in

theory) at one or other of the following approved institutions:—

School of the Pharmaceutical Society of Ireland.
Central Technical Institute, Waterford.
Municipal Technical School, Drogheda.
Municipal Technical Institute, Limerick.
City of Dublin Technical Schools.
Queen's University, Belfast.
University College, Galway.
Royal College of Science for Ireland, Dublin.
Royal College of Surgeons in Ireland, Dublin.
School of Physic, Trinity College, Dublin.
Crawford Municipal Technical Institute, Cork.
Central Technical Institute, Clonmel.
Municipal Technical Schools, Dundalk.
City of Galway Technical Institute.
Crawford Municipal School, Cork.
University College, Dublin.
Trinity College, Dublin.

Some of these are approved for all the subjects, others for one or two subjects only.

IRISH FREE STATE PHARMACY QUALIFICATIONS

(IN BRIEF)

L.P.S.I.

1. Pass Recognised Preliminary before apprenticeship.
2. Four years' apprenticeship in a pharmacy.
3. Courses, in an approved institution, of three months in (a) Theoretical Chemistry, (b) Botany and *Materia Medica*, (c) Practical Chemistry.
4. Pass Pharmaceutical Licence Examination after the age of twenty-one.

R.D.

1. Serve four years as assistant or apprentice.
2. Pass Registered Druggist Examination.

PHARMACEUTICAL ASSISTANT

As for L.P.S.I., but need not be twenty-one, nor have taken courses of instruction.

practical and oral, is in the following subjects:—

BOTANY: Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

MATERIA MEDICA: Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

CHEMISTRY: Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends "Text Book of Pharmaceutical Chemistry" (Bentley and Driver).)

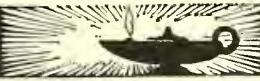
PRACTICAL PHARMACY: Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act, 1870.

Assistants to Pharmaceutical Chemists

This examination, instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist, is held quarterly, being on the Thursday following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of £1 1s. New candidates pay, in addition, a registration fee of £1 1s. The



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re-examination fee is £1 1s. The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are:—

PRESCRIPTIONS: Candidates will be required to read autograph prescriptions, translate them into English, render a correct translation of the directions for use, and detect unusual doses.

PRACTICAL DISPENSING: To weigh, measure and compound medicines, write the directions in suitable language, finish and properly direct each package.

MATERIA MEDICA AND QUALITY OF SPECIMENS: To recognise the Pharmacopoeia chemicals in frequent demand, and specimens of roots, barks, leaves, fruits, resins and gums in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

PHARMACY: To recognise the preparations of the Pharmacopoeia which are not of a definite chemical nature, such as extracts, tinctures and powders, and give the proportions of the more active ingredients.

The candidates will also be examined in the Sale of Poisons (Ireland) Act.

Registered Druggists

The subjects of the examination are prescribed by the Pharmacy Act (Ireland) Amendment Act, 1890, and are as follows:—

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopoeia.

The appearance and properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary, keeping open shop, and is held in Dublin on the second Tuesday of January, April, July and October. Application for admission, accompanied by the necessary declarations of service and a receipt for £4 4s. placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is £2 2s.

II—Northern Ireland

Preliminary Examination

Pharmacy in Northern Ireland differs from pharmacy in Great Britain and in the Irish Free State in that the registered proprietors of retail businesses will all, eventually, be pharmaceutical chemists, the former class of registered druggists having either become pharmaceutical chemists since 1925 or having been registered under a provision which is not being continued permanently. The Pharmacy and Poisons Act (Northern Ireland), 1925, under which this change is taking place, provided a modified examination for registered druggists who wished to qualify as pharmaceutical chemists; and many have thus secured the higher qualification. The Queen's University of Belfast offers the degree of B.Sc. in Pharmaceutics, the examination for which exempts from examination by the Pharmaceutical Society in pharmacognosy and chemistry, Part II, and from the written examination in pharmacy, practical pharmacy, Latin and prescription-reading. Full particulars may be

obtained from the Registrar of the University or the Secretary of the Society.

Before a student can become apprenticed he must pass a preliminary examination in English, mathematics, and three other subjects (one of which must be a language from the following list):—Latin, Greek, French, German, Spanish, Italian, Irish, modern history, geography, botany, chemistry, physics or mechanics. The five subjects must have been passed at one, or not more than two, of the following examinations:—(a) The Matriculation examination of the Queen's University of Belfast; (b) any examination accepted by that University as equivalent to Matriculation examination; (c) the Pharmaceutical Preliminary examination of Queen's University, Belfast. Candidates in the first instance must apply to the secretary of the Pharmaceutical Society of Northern Ireland, 73 University Street, Belfast, at least one month before the last day of entry for Matriculation. They will be examined on the papers set for the Queen's University Matriculation examination,

and must reach the standard set for the Pharmaceutical Preliminary, which is below Matriculation standard. An application for the Preliminary certificate of apprentice to a pharmaceutical chemist must be accompanied by £3 3s. Having obtained this, the student will register officially as an apprentice at the Ministry of Home Affairs (fee 5s.). A four-years' apprenticeship to a pharmaceutical chemist or four years with a registered druggist and two years with a pharmaceutical chemist then begins.

Pharmaceutical Chemists

Having satisfied the requirements as to apprenticeship and attendance at approved courses of instruction the candidate under the new Regulations must pass Part I, the subjects of which are botany, chemistry Part I, physics and business methods (or pass the Intermediate examination of the Queen's University, Belfast):—

BOTANY.—The elements of plant morphology and anatomy, physiology, classification. Practical examination of plants and preparation of sections for the microscope.

CHEMISTRY, PART I.—An elementary knowledge of chemical action, laws, valency; non-metals, metals, carbon, methane, ethylene and acetylene; methods of determining carbon, hydrogen, oxygen and nitrogen in organic compounds. Solve simple problems in weight and volume. **Practical.**—Preparation of inorganic substances; qualitative and quantitative (volumetric) analysis.

PHYSICS.—Elementary knowledge of mass, energy and work, solids, liquids, gases; temperature; propagation of light, magnetism and electricity. **Practical.**—Perform simple experiments on the above.

BUSINESS METHODS.—Book-keeping, including business books required in a pharmacy; double entry; balance sheets; commercial law relating to master and servant, leases, agreements and contracts. A working knowledge of matters likely to arise in pharmaceutical practice relating to licences, insurance, income tax, partnership and company trading, elementary principles of advertising and salesmanship; modern methods of window display; shop-craft, including arrangement of a shop, windows, heat, ventilation, counters, wall and counter cases and general layout.

Having passed Part I at not more than two examinations, the candidate supplies evidence of age, 21, attendance at approved courses in the subjects of Part II as



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follows. (Alternatively, the candidate may submit to the Board of Examiners evidence that he has passed the examination in all subjects of Final Part I for the B.Sc. in pharmaceutics of the Queen's University, Belfast, and present himself for oral and practical examinations in pharmacy, practical pharmacy, Latin and prescription-reading. A candidate who fails in any of these subjects must present himself in all at another examination.

PHARMACOGNOSY.—Recognition of B.P. drugs, their sources, characters, active principles, varieties, natural orders, knowledge of B.P. tests.

PHARMACY.—Knowledge of operations requiring heat, disintegration of solid substances, filtration, expression, solution, art of dispensing, manufacture of galenicals.

LATIN AND PRESCRIPTION-READING.—Translation of Latin prescriptions; detection of errors; knowledge of physiology; percentages.

PRACTICAL PHARMACY.—Perform operations of the B.P. in making galenicals. Compound and dispense medicines.

FORENSIC PHARMACY.—Knowledge of poisons in the fourth Schedule to the Pharmacy and Poisons Act (Northern Ireland), 1925, and conditions relating to keeping, selling and dispensing. Dangerous Drugs Acts and Regulations.

CHEMISTRY, PART II.—General knowledge of B.P. and common alkyl and aryl compounds, adulterations in B.P. inorganic and organic compounds and methods of determining purity. *Practical:* Identify specified organic compounds; detect adulterants of B.P. substances; volumetric and nitrometric determinations; methods of preparing more important inorganic and specified organic compounds; alkaloidal determinations.

The examinations are held in June and December, examination fees being £4 4s. for Part I and £8 8s. for Part II. For re-examination, half these fees.

Irish Educational Institutions

Pharmaceutical Society's Schools

67 Lower Mount Street, Dublin

Director: Chemistry School, Professor H. Norminton, M.Sc. Botany and Materia Medica School, Mr. A. F. Collins, B.Sc., M.P.S.I., H. Dip. Pharmacy Class, Mr. Thomas J. Smith, M.P.S.I., on Mondays, Wednesdays and Fridays from 7.30 to 9.30, and the student must attend at least 75 per cent. of the lectures to obtain a certificate. Three sessions commence on October 1, January 1, and April 1. Fees: Theoretical chemistry (three months), £1 11s. 6d.; practical chemistry (100 hours), £8 8s.; practice course (three months), past students, £2 2s.; students of other schools, £4 4s.; botany and materia medica (three months), £2 2s.; pharmacy, £4 4s.; students of other schools, £5 5s. Botany and materia medica classes held on Tuesday and Thursday evenings. Revision courses for past students, half fees.

Belfast Municipal College of Technology

Head of Chemistry Department: Professor H. Wren, D.Sc.; Lecturers in pharmaceutical subjects, C. J. Still, Ph.D., M.Sc., C. W. Young, Ph.C., Miss Hughes, B.A., M.Sc., A.I.C., J. W. Porter, F.I.C., F.R.C.Sc.I., A. J. Thorburn, B.Sc., Ph.C. Under the co-ordination scheme with the Queen's University of Belfast students may also obtain the degree of B.Sc., in Pharmaceutics.

Apothecaries' Assistants

Section 17 of the Apothecaries Act, 1815, enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as assistant to an apothecary in compounding and dispensing medicines." The conditions are as follows:—

(a) The candidate (male or female) must be at least eighteen years of age. (b) A certificate of general education up to the age of sixteen must be produced. (c) A certificate of instruction in chemistry for not less than 200 hours during nine months, signed by a principal teacher of chemistry at a

university, college, technical institute, school of pharmacy, or a secondary school, or by a person possessing a university degree in science, or a fellowship of the Institute of Chemistry. (d) A certificate of instruction in practical pharmacy and *materia medica* for not less than 200 hours during nine months, signed by an assistant of the Society holding a public appointment, a registered chemist and druggist, or a registered medical practitioner. (e) The candidate must pass an examination in (1) compounding and dispensing medicines (a practical examination), (2) chemistry, *materia medica*, pharmacy, and the translation of prescriptions (an oral examination). Fee £6 6s.

Particulars are obtainable from the Registrar, Society of Apothecaries of London, Water Lane, London, E.C.4.

The Apothecaries' Hall of Ireland has a similar examination for the certificate of assistant to an apothecary. Fee, £8 8s. Particulars from the Registrar, 95 Merrion Square, Dublin.

Dispenserships

Official positions as dispensers or "pharmacists" are open to pharmacists as follows:—

LONDON COUNTY COUNCIL (EXCLUDING MENTAL HOSPITALS).—For full-time officers the annual scales of salary are as follows:—

(a) Pharmacist Scale A, £400—£20—£500; Pharmacist Scale B, £325—£12 10s.—£375; Pharmacist Scale C, £250—£10—£300. (b) Pharmacist acting as assistant to another pharmacist, £225—£10—£275. (c) Assistant dispenser (unregistered), £175—£10—£225. In all future appointments—

(a) Only persons who are registered as pharmaceutical chemists or as chemists and druggists to be eligible for appointment as pharmacists in the hospitals, institutions or district dispensaries.

(b) An unregistered dispenser, an articled pupil or an apprentice to be eligible for employment only in those hospitals, etc., where there are authorised positions for dispensing staff in addition to two pharmacists. Fuller particulars in a leaflet issued by the Council.

LONDON COUNTY COUNCIL (MENTAL HOSPITALS).—The rates of pay for pharmacists in mental institutions controlled by the London County Council are as follows:— Large London County mental hospitals (men and women).—£270 a year, rising by £15 annually to £405. The Manor, Epsom, and The Maudsley hospital (women).—£220 a year, rising by £10 annually to £250, thence by £12 10s. annually to £300. Caterham and Leavesden mental hospitals, Darenth training colony and Tooting Bec hospital (men and women).—£250 a year, rising by £12 10s. annually to £350.

NAVY.—The Pharmaceutical Service consists of the following grades:—(a) Head pharmacist; (b) superintending pharmacists; (c) senior pharmacists; (d) pharmacists. The age of pharmacists on entry must not be less than twenty-one nor more than twenty-eight years. Candidates must possess certificates that they hold either the Major or the Minor qualification of the Pharmaceutical Society of Great Britain or the certificate of competency granted by the Pharmaceutical Society of Ireland, and produce testimonials and a full record of training, qualifications and experience. Pharmacists will be paid a salary of £120 per annum on entry, rising by £7 10s. annually to £180.

PUBLIC ASSISTANCE INSTITUTIONS.—Appointments of dispensers under the old poor-law service are now made by boroughs or county councils. Under the Poor Law Order of 1930 such dispensers are not included in the list of principal officers. The salaries vary.

PRISON COMMISSION.—Candidates for appointment must be between twenty-four and thirty-five years of age, and must hold the qualification of the Pharmaceutical Society of Great Britain as chemist and druggist or pharmaceutical chemist. The scale of pay begins at £187 9s. per annum, proceeding by annual increments to £268 1s. per annum. For further information apply to the Prison Commissioners, Home Office, London, S.W.1.

Educational Information

Scholarships and Prizes

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Pharmaceutical Chemist Qualifying examination during the year, and were members or student-associates of the Society at the time of passing. The (written) examination is in *materia medica*, botany and chemistry, and is held in August. The first prize is the Pereira silver medal and books worth £7 10s.; second, the Society's silver medal and books worth £2 10s.; and third, the Society's bronze medal and books worth £2 10s. The Society also has in its gift the following:—

The Jacob Bell Scholarship.—A scholarship of the value of at least £56 10s., offered annually by the Society as a memorial of Jacob Bell. The award comprises free instruction at the Society's School, a sum of money and a gift of books. The scholarship, tenable for one or two years in respect of various courses of study at the option of the Bell scholar, is open only to student-associates of the Society. Details are obtainable from Mr. Hugh N. Linstead, Secretary and Registrar, 17 Bloomsbury Square, London, W.C.1.

The Burroughs Scholarship has been combined with *the Redwood Scholarship* and *the Ransom Fellowship* for affording pharmaceutical chemists or university graduates in pharmacy opportunities of working in the research laboratories of the Society. Each scholarship is tenable for two years, and each holder of a scholarship receives apparatus and £100 per annum. The annual sequence of the scholarship is as follows: Burroughs; Ransom; Redwood; Ransom. Particulars and application forms may be obtained from the Secretary of the Society.

The Devon and Cornwall Exhibition in Pharmacy, of the annual value of about £25, is tenable at the University College of the South-West, Plymouth, and is applied to the payment of tuition fees. Candidates must have been trained during a specified period in Devon or Cornwall.

Herbarium Prizes.—The Council of the Society offers annually to its student-associates a silver medal, a bronze medal and certificates of honour, for an herbarium of not more than 150 British plants collected in any part of the British Isles. Further particulars from the Registrar of the Society.

The Charles James Hewlett Memorial Exhibition, of the value of £15, is awarded annually on the recommendation of the School staff to the student-associate (other than a Bell scholar) who most distinguishes himself during attendance at the first year of the course for the Pharmaceutical Chemist Qualifying examination or for the B. Pharm. degree.

Leverhulme Scholarships.—A fund endowing three scholarships of the annual value of £60 each was presented to the Society by the late Lord Leverhulme in 1923. The first scholarship carries with it gold medal and £5 worth of books, and the second a prize of books to the value of £5.

The Manchester Pharmaceutical Association Scholarship is open to student-associates of the Pharmaceutical Society who have served an apprenticeship in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about £45.

The Petrie Trust Bursary, of the annual value of about £16, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen.

The Rammell Studentship, of the value of £100, is tenable for a year by a member of the Society in the Society's Pharmacological Laboratories.

Nottingham University College Studentships.—Two studentships of the annual value of £31 10s. each are awarded, on the recommendation of the Council, by the governing body of University College, Nottingham. Further particulars will be found in the Society's Calendar.

Until further notice, the Jacob Bell, Manchester and Leverhulme scholarships and the Devon and Cornwall exhibition will be awarded in accordance with regulations of which the following paragraphs are an abridgment.

1. There shall be one examination for all the scholarships, which will be conducted by an examiner or examiners appointed by the Council of the Society, and the awards made by the Council on the recommendations of such examiner or examiners.

2. The examination will be held on the third Tuesday and Wednesday in June of each year in Aberdeen, Birmingham, Cardiff, Edinburgh, Exeter, Leeds, London, Manchester and Newcastle, or such other centres as may be selected.

3. At the time of giving notice of their intention to enter for the examination, competitors must be student-associates.

4. No person shall be awarded more than one scholarship, but a person may compete for all the scholarships for which he is eligible at the same examination. Should he gain marks entitling him to the award of more than one scholarship he will be permitted to select the scholarship he wishes to have awarded to him.

5. On the day on which the examination is held, competitors must be not less than nineteen nor more than twenty-two years of age.

6. Competitors must give notice to the registrar in London on or before June 1 in the year in which the examination is to take place. The notice must be accompanied by a registrar's certificate of birth, an employer's testimonial, and a declaration as to practical training. At the same time the competitor must state (a) the language subject in which he wishes to be examined, and (b) the examination centre at which he wishes to attend.

(The subjects of the examination are printed in the Society's Calendar.)

THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and silver medal to pharmaceutical chemists who have during the year passed the Licence examination on the first attempt and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and 65 in each of the three subjects; for the silver medal, 230 marks out of 300, and 60 in each of the three subjects. Two preliminary scholarships (1st class, value £10 10s.; 2nd class, value £5 5s.) are awarded each September. Particulars may be obtained from the Registrar.

THE FAIRCHILD SCHOLARSHIP was founded in 1904 by Fairchild Brothers & Foster. The object of the scholarship is to encourage study during apprenticeship. The examination is designed not as a test for completed studies, but to see how far the student has used his time and powers of observation during apprenticeship so as to fit himself or herself to appreciate fully the subsequent course of study. The value is £60, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examinations take place during June, and entries should be made on, or before, June 1. The examinations are held in London, Manchester, Edinburgh, Cardiff, Dublin and Belfast, the amount over 5s. railway fare being refunded if application is made to the Secretary. The age limit is not less than nineteen years on July 1, 1935, nor exceeding the twenty-second birthday on January 1, 1935, and all competitors must be registered students or apprentices of pharmacy. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Chemistry and physics, botany, practical pharmacy and prescription-reading, business knowledge. The trustees are Mr. Peter Boa, Edinburgh; Mr. William Kirkby, Manchester; Mr. A. J. Phillips, London. All communications should be addressed to the Secretary to the Trustees, Mr. Herbert Skinner, Ph.C., Albert Chambers, 64-65 Holborn Viaduct, London, E.C.1.

THE KINNIMONT SCHOLARSHIP.—Instituted in 1894 by the late Alexander Kinnimont, Ph.C., for pharmacy students in Glasgow and the West of Scotland. The scholarship, of the value of £10 10s., tenable at the Royal Technical College, Glasgow, is awarded on the result of a written examination in chemistry, botany and physics, held in Glasgow in September of each year.

"CORNER FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST conduct a monthly competition in qualitative chemical analysis. The next series of competitions, which commences in October, will give students of chemistry excellent practice in manipulation and deduction. This section of THE CHEMIST AND DRUGGIST has for more than sixty years afforded students a means of testing their progress in an important aspect of practical chemistry.

Educational Information

Medicine

In medicine, as in pharmacy, public discussion of the subjects in the curriculum, and of the relative importance to be assigned to each subject, has been going on for some years. It may be true, as some contend, that the medical curriculum is overloaded; it may also be the case that laboratory work is being increased at the expense of clinical experience. However, the medical schools are equipping their students better than ever before in technical respects; and an interesting development during recent weeks is the scheme by which the teaching resources of various hospitals are to be to some extent interchangeable. Again, post-graduate study (not to mention the hospital experience that usually follows qualification) is so highly organised as to offer very favourable opportunities to the young practitioner to keep himself informed of the latest developments in most branches of medicine. His attitude to post-graduate study will naturally depend on the type of career that he favours. He may apply for a Government appointment, at home or abroad; he may wish to become permanently attached to a hospital or a research institution; he may decide to teach in a university school of medicine; or he may elect to join the majority in general practice. Of late years the number of registered medical practitioners has increased more rapidly in proportion to the population than has the number of registered dentists; but the growth of schemes for providing the dependants of insured persons with medical service indicates that spheres of work for medical men are likely to become more numerous in the near future.

The General Medical Council is, by the provisions of the Medical Act, 1858, the governing body for the purposes of examination, registration and discipline. The council issues (price 1s.) a "Memorandum on the Procedure to be Adopted by those who Desire to Enter the Profession of Medicine" Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British University, together with evidence of having passed an approved examination in elementary physics and elementary chemistry and of having commenced medical study, and, after registration as medical students, to take a course of study and training, extending to at least five years, at a recognised institution. There are two types of medical qualification, the degrees bestowed by the universities and the diplomas given by such bodies as the Royal Colleges of Physicians and Surgeons.

Preliminary Examinations

The education committee of the General Medical Council issues a list of examining bodies, the examinations of which in general education fulfil the conditions laid down by the Council as to admission as a medical student (see "Registration as Medical Students"). These examinations include: (1) the final arts or science degree examination of any university of the United Kingdom or of the British Dominions; (2) the matriculation examination of any university in Great Britain or of certain examining bodies in Ireland; (3) a number of school and other examinations accepted by approved universities as equivalent to their respective matriculation examinations. Any preliminary examination must include: (1) English; (2) elementary mathematics; (3) a language from a selected list, other than English; (4) a second language from the list or one of the following subjects: higher mathematics, history, geography, chemistry, physics, zoology, botany, biology, geology. A Joint Matriculation Board (Secretary, 315 Oxford Road, Manchester) governs the Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March and September of every year, in Aberdeen, Birmingham, Blackburn, Bristol, Cardiff, Glas-

gow, Leeds, Liverpool, London, Manchester, Newcastle-on-Tyne, Nottingham and Swansea, a Professional Preliminary examination for certificates recognised by the General Medical Council and other bodies. The fee is 25s., plus a local fee of from 5s. to 15s. A similar examination is held (fee, 21s.) by the Educational Institute of Scotland, 46 and 47 Moray Place, Edinburgh, in February, May, August and November (calendar 6d.; examination papers, 1s.). The examination centres are Edinburgh, Glasgow, Liverpool, London and Dublin. The subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held is one that will be accepted.

Registration as Medical Students

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in Regard to the Registration of Medical and Dental Students" (1s., post free from the Registrar, 44 Hallam Street, London, W.1.).

The following is a summary of the regulations:—

(1) Before registration as a student every candidate shall produce evidence that he has attained the age of seventeen years.

(2) The minimum standard of general education required will be that of University matriculation or entrance examination in arts or pure science.

(3) Before registration as a student every applicant shall be required to have passed an approved examination in general education (see "2"), and, in addition, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(4) A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing body may be admitted to the Professional examination in elementary biology, if that body sees fit, immediately after his registration as a student.

The commencement of the course of professional study recognised by any of the licensing bodies should not be reckoned as dating earlier than fifteen days before the date of registration. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:—

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W.1.

The Registrar of the Scottish Branch Council, 12 Queen Street, Edinburgh.

The Registrar of the Irish Branch Council, 35 Dawson Street, Dublin.

The Registration Office for the Irish Free State is Room 123, Custom House, Dublin.

The General Medical Council enjoins that in every course of professional study and examination, which must occupy not less than five academic years, the following subjects shall be comprised:—

(1) *Elements of General Biology*, including practical work and an introduction to the study of embryology; (2) *Chemistry, Physics, and Biology* in their application to medicine; (3) *Human Anatomy and Human Physiology*, including dissection, histology, elements of human embryology, biochemistry and biophysics; (4) *Elementary Bacteriology*; (5) *Pathology*; (6) *Pharmacology and Materia Medica*, including pharmacological chemistry; (7) *Forensic Medicine, Hygiene, and Public Health*; (8) *Medicine*, including applied anatomy and physiology, clinical pathology, and therapeutics; (9) *Surgery*, including applied anatomy and physiology, and clinical pathology; (10) *Midwifery and Diseases of Women*.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in arts or science at approved universities. No general exemption of this kind is given to registered chemists

Educational Information

and druggists except as regards training in practical pharmacy. The Preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

University Degrees

In the following paragraphs we indicate concisely the conditions framed by the universities of the places named for the ordinary degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees). For other and higher degrees further courses of study and fees are requisite.

ABERDEEN.—The two degrees are conferred together, and cannot be taken separately. The curriculum extends over a period of not less than five years, during which the candidate must attend the prescribed courses of instruction. The fee for the two degrees is £34 13s., payable in four instalments. Bursaries, scholarships and fellowships to the annual value of £1,200 are obtainable. Further information may be obtained from the Secretary, or from the University Press.

BELFAST.—Three academic years at least, out of the five prescribed for the curriculum, must be passed in the University. The Dean of the Faculty of Medicine is Professor W. J. Wilson, M.D.

BIRMINGHAM.—The course extends over six years, and there are five examinations. Several scholarships are available. A minimum of three years must be spent in the University. Dean of the Medical Faculty, Dr. Stanley Barnes, University Medical Buildings, Edmund Street.

BRISTOL.—There are three examinations, the total fees for qualifying (including graduation fee) amounting to about £28. The curriculum occupies not less than five years subsequent to the passing of the Preliminary Science examination. Particulars of scholarships and prizes are given in the University (Faculty of Medicine) prospectus. Secretary and Registrar, Miss Winifred Shapland.

CAMBRIDGE.—Students are required to pass or obtain exemption from the Previous examination before proceeding to the examinations for the M.B. and B.Chir. degrees. The examinations for both degrees are the same except that for the M.B. degree the candidate must also compose a thesis, on which he is orally examined by the Regius Professor. The fee for each degree is £6 or, in the case of one already a graduate of the University, £4. The Registrar is Mr. E. Harrison, M.A.

DUBLIN.—Candidates for the degrees in medicine, surgery and obstetric science must be of B.A. standing and must have completed five years in medical studies. The degree fees amount to £17. Dean of the Faculty of Physic, Dr. A. F. Dixon.

DURHAM.—There are four examinations for the M.B., B.S. degrees, and the course of study extends over five years, one of which must be spent at the University's College of Medicine. The fees for matriculation and examination amount to £35 3s. Numerous bursaries and prizes are offered. Full information from Dr. Stuart McDonald, Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

EDINBURGH.—The course for the degrees of M.B. and Ch.B., which are not conferred separately, extends over not less than five years. There are four examinations. Several scholarships, bursaries and prizes are offered for competition. Dean of the Faculty of Medicine, Professor Sydney Smith, M.D.

GLASGOW.—There are four examinations. The period of study prescribed is five years, with specific regulations as to the length of the various courses of instruction. Various bursaries and prizes are open to competition. The Dean is Professor Andrew Hunter, M.B.

IRELAND.—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) upon matriculated students who have passed the Pre-Registration examination and have passed four further examinations during a minimum of five years' study. Particulars may be obtained from the Registrar, National University, Dublin.

LEEDS.—There are three examinations, and the course of study extends over five years. Attendance at approved courses of instruction is obligatory. The matriculation, examination and conferment fees amount to £35. Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.

LIVERPOOL.—The curriculum extends over six years, three of which must be passed in the University. There are three examinations, with a fee of £5 each, and a graduation fee of £6. Several fellowships, scholarships and prizes are available. Dean of the Faculty, Professor W. H. Wood, M.D.

LONDON.—The normal course of study extends over five and a half years, and there are three examinations, the second of which is divided into two parts. Several institutions in the United Kingdom and the Colonies are recognised for teaching and giving certificates, and various concessions are granted in respect of examinations already passed. There are several studentships and research grants available. Internal and external students should apply respectively to the Academic Registrar and the External Registrar, University of London, South Kensington, S.W.7.

MANCHESTER.—Four examinations for the two degrees, after study extending over not less than five years, must be passed. Two of these years must be spent in the University. Several scholarships, exhibitions and other competitive prizes are offered to students. Full information is obtainable from the Dean of the Medical School (as to classes) and the Registrar (as to examinations).

OXFORD.—The regulations stipulate that candidates must hold an Oxford Arts degree as a prerequisite. Two examinations are held (after a preliminary examination) for the degree of B.M.; the degree of B.Ch. is granted with that of B.M. after passing the second examination. The minimum time in which the degrees can be obtained is about six years from the commencement of "residence." The Dean of the Medical School is Dr. M. H. MacKeith, Department of Medicine, University Museum; and the examination statutes are published by the Oxford University Press.

ST. ANDREWS.—The course for the M.B., Ch.B. degrees (which are not separable) extends over at least five years, and the prescribed order of studies must be followed. There are four examinations. Dean of the Faculty, Professor F. J. Charteris, M.D., Medical School, Dundee; Secretary of the University, Mr. Andrew Bennett.



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SHEFFIELD.—There are four examinations for the M.B., Ch.B. degrees, the curriculum occupying five and a half academic years. Candidates who are referred in Part II or Part III of the Final examination must produce evidence of having received subsequent instruction satisfactory to the Faculty before entering for re-examination. Several scholarships are available. Dean of the Faculty, Dr. G. A. Clark; Registrar of the University, Mr. W. M. Gibbons, M.A.

WALES.—The course of study is divided into two parts, each extending over three academic years. A degree, in science or arts, of some approved university, is necessary before the medical degrees can be conferred. Examination fees are £20 10s. The constituent colleges are Aberystwyth, Bangor, Cardiff and Swansea. Provost, Professor A. W. Sheen; Secretary, Mr. S. C. Edwards, The Parade, Cardiff.

Medical and Surgical Diplomas

M.R.C.S.ENG. AND L.R.C.P.LOND.

The Examining Board of the Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma for registration as a general medical practitioner. There are two professional examinations (in addition to the Preliminary examination and Pre-medical examination) during the five years' curriculum subsequent to registration as a medical student. The books of questions for certain years may be obtained from Taylor & Francis, Red Lion Court, London, E.C.4. A book of questions is published annually.

The subjects of the *First Professional Examination* are:—Section I, (a) Anatomy, including histology and embryology; (b) Physiology, including biochemistry. Section II, Pharmacology and *materia medica*. (A new syllabus for this section came into force at the examination in March-April, 1934.) Candidates may present themselves for the two sections together or separately, but they must take Parts (a) and (b) of Section I together until they have passed in one or both parts. Candidates will not be allowed to pass in one part unless they obtain at the same time at least half the number of marks required to pass in the other part. Section II may be passed at any time before the candidate enters for the Final examination. Before admission to the First examination, candidates must produce evidence of having attended:—For Section I: (1) Courses of instruction in anatomy, including embryology, during five terms, during which they must have dissected the whole body; (2) courses of instruction in physiology, including biochemistry and biophysics, during five terms; (3) a course of instruction in histology. For Section II: Courses of Instruction in pharmacology and *materia medica*. The fee for the whole examination is £10 10s.

The subjects of the *Final Professional Examination* are:—Section I, Pathology (including morbid anatomy, morbid histology and clinical pathology) and bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine and public health. Part II, Surgery, including surgical anatomy and the use of surgical appliances. Part III, Midwifery and gynaecology. Candidates will be required to produce evidence of having completed courses of study in pathology (including morbid anatomy and histology), *post-mortem* work, clinical pathology, bacteriology, clinical medicine, practical surgery, forensic medicine, mental diseases, public health anaesthetics, midwifery and gynaecology, applied anatomy and applied physiology, operative surgery, and practical pharmacy. Certificates of having received certain specified hospital instruction must also be presented. Re-examination in referred subjects cannot take place within three months of the date of rejection. The fees for this examination amount to £31 10s.

Special regulations are provided for cases in which students have passed examinations in certain subjects elsewhere. Changes in these regulations have recently been made regarding students from India and foreign universities. Synopses of the examination can be obtained from Mr. H. H. Rew, Secretary of the Examining Board, 8-11 Queen Square, London, W.C.1.

SCOTTISH TRIPLE QUALIFICATION

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and

Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years. Full particulars may be obtained from the Registrar, 49 George Square, Edinburgh, or the Registrar, 242 St. Vincent Street, Glasgow.

IRISH QUALIFICATION

Particulars of the examination of the Irish Conjoint Board for the licences in medicine, surgery and midwifery may be obtained on application to the Secretary of the Committee of Management, Royal College of Surgeons, St. Stephen's Green, Dublin. Examination fees for the three examinations amount to £44 2s., and the Final examination cannot be taken within three academic years of passing the First examination.

LONDON SOCIETY OF APOTHECARIES' DIPLOMA

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery and midwifery. The Final examination is held monthly, except in September, and comprises:—(a) Principles and practice of Surgery, including surgical pathology, surgical anatomy, operative manipulation, instruments and appliances. (b) Principles and practice of medicine, including therapeutics, pharmacology, pathology, bacteriology and morbid histology. (c) Midwifery, gynaecology, diseases of new-born children and the use of obstetric instruments. (d) Forensic medicine, hygiene, mental diseases, and the theory and practice of vaccination. After January 1, 1935, parts (b) and (d) will be amalgamated into one section of the Final. The examination is partly written, partly practical, partly clinical and partly oral. The minimum period of medical study extends over five years (fifty-seven months). The course of study includes attendance on the surgical and medical practice at a hospital connected with a medical school for a period of three winter and three summer sessions. The fee for the Pre-medical examination is £5 5s., and for the Licence £21, which may be paid in two instalments. Application may be made to the Registrar, Society of Apothecaries of London, Water Lane, E.C.4.

DUBLIN APOTHECARIES' DIPLOMA

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations. There are three examinations, with fees of £10 10s., £10 10s., and £21 respectively. Particulars may be obtained from the Registrar of the Apothecaries' Hall, 95 Merrion Square.

Medical Schools

The following are the principal medical schools in the United Kingdom:—

LONDON

The following medical schools are constituents of the London University:—

Charing Cross Hospital Medical School, Chandos Street, W.C.2.—Prepares students for all the degrees in medicine and surgery of the University of London, for the diplomas of the Conjoint Board and of other licensing bodies. The Hospital has 300 beds, and includes complete departments for all the special branches of the curriculum. The School contains a large and well-equipped library, a Pathological Museum in which nearly 4,000 specimens are exhibited, with a special section devoted to the "Lockyer Collection." Prizes to the value of about £100 are awarded every year, and there are several scholarships. Fees: Entrance: (a) for the whole course, including Primary and Intermediate, £16 10s.; (b) for Clinical Studies only, £10 10s. Annual fee, £39 18s. Dean, Mr. Eric A. Crook, M.Ch., F.R.C.S.; Secretary, Mr. Wyndham Edwards.

Guy's Hospital Medical School, London Bridge, S.E.1.—The fees for a five-years' course amount to approximately £245. Several scholarships are obtain-




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able by students, and a residential college (facing the hospital) is open. Communications should be addressed to the Dean of the Medical School.

King's College, Faculty of Medical Science, Strand, W.C.2.—Students are prepared for all the usual preliminary and intermediate examinations in medicine and surgery. Fees: First M.B. or Pre-medical course, £36 15s. per annum; courses for second examination, £42 per annum. Scholarships and prizes exceeding £600 in value are awarded annually. Dean of the Faculty, Professor D. M. Blair, M.B., Ch.B.

King's College Hospital Medical School, Denmark Hill, S.E.5.—Composition fee for the University of London course or the Conjoint Board course, £210; this fee includes three years' tuition at King's College and three years at the Hospital. Scholarships of a total value of £1,500 are given annually. Dean, Dr. John A. Drake. The calendar may be obtained on application to the Secretary, Mr. S. C. Ranner, M.A.

London Hospital Medical School, Turner Street, E.1.—Entrance fee £21; annual fee £42. Scholarships open to competition, and numerous prizes in various subjects. Dean, Professor W. Wright, D.Sc., M.B.; Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C.1.—The fee is £50 per annum throughout the course of study—M.B., B.S., or the Conjoint Board qualification. Dean, Miss Elizabeth Bolton, M.D., M.S. A list of scholarships (total annual value, £1,950) and other particulars may be obtained from the Warden and Secretary.

Middlesex Hospital, Union Street, W.1.—The school, which includes the Bland-Sutton Institute of Pathology, the Courtauld Institute of Biochemistry, the Ferens Institute of Otology and the Barnato-Joel Research Laboratories, is fully equipped for teaching the entire medical curriculum; special courses are given for the Primary F.R.C.S.Eng. and the University of London and University of Cambridge diplomas in radiology. Special attention is given to the co-ordination of the work in the laboratories with that in the wards. Entrance fee, £25; five annual instalments of £45; thereafter at the rate of £23 per annum until qualified. Two entrance scholarships, value £100 each, and two university scholarships, value £90 and £60 respectively, are awarded annually. Other scholarships and prizes to the total value of £1,000 are also awarded each year. A prospectus may be obtained, on application, from the Secretary of the School. Dean, Dr. H. E. A. Boldero, F.R.C.P.

St. Bartholomew's Hospital Medical College, Smithfield, E.C.1.—Composition-fee, £231 (or five annual instalments of £50 8s. each). The total value of the scholarships and prizes awarded annually is over £1,500. Dean, Mr. W. Girling Ball.

St. George's Hospital, Hyde Park Corner, S.W.1.—Composition-fee (first year), £36 15s.; (second to fifth years) £42 each. Courses in preliminary and intermediate subjects are taken at King's College or University College. There are several scholarships, exhibitions and prizes. Dean, Dr. A. Feiling.

St. Mary's Hospital Medical School, Cambridge Place, W.2.—Composition-fee for the curriculum (time limit six years), £205—if paid in four instalments, £215. Entrance-scholarships, together with several studentships and prizes, are awarded annually. The new Medical School buildings, which have been in course of erection during the past three years, are now in use. Dean, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews.

St. Thomas's Hospital Medical School, Albert Embankment, S.E.1.—There are four entrance scholarships; other prizes are open for competition. Annual fee £50. Secretary, Dr. R. J. C. Thompson.

University College Hospital Medical School, University Street, W.C.1.—Inclusive fee to cover complete clinical course:—£45 per annum for three years. There are no extras, as these fees include: (i) Courses of instruction in pharmacy, vaccination and fever; (ii) life subscription to the Medical Society or Women's Medical

Club. Several scholarships and exhibitions are offered by competition. Dean, Dr. A. M. H. Gray; Secretary, Mr. Richard Sloley.

Westminster Hospital Medical School, 12 Caxton Street, S.W.1.—Entrance-fee, £10 10s.; annual composition-fee (payable in advance), £42. Scholarships and prizes are awarded. Preliminary and intermediate studies are taken at King's College. Dean, Sir Stanley Woodwork, M.D.; Secretary, Mr. H. Cyril Eddowes.

OUTSIDE LONDON

ABERDEEN.—University Faculty of Medicine.—The total cost of obtaining the M.B., Ch.B. degree is estimated at £240, including hospital fees, class fees, and degree fees. Clinical study is available at the Royal Infirmary and other local institutions. Applicants should communicate with the Secretary.

BELFAST.—Queen's University of Belfast.—Students are prepared, during a five-years' course, for the degrees of M.B., B.Ch., and B.A.O. The combined class and laboratory fee for four years is £105, payable in four instalments.

BIRMINGHAM.—University Faculty of Medicine.—The minimum cost of obtaining the double degree is estimated at £246. Combined courses for medical and dental degrees or diplomas can be arranged. Full information is obtainable at the Dean's Office, Medical Buildings, Edmund Street.

BRISTOL.—University Faculty of Medicine.—The approximate cost of obtaining the conjoint degrees is £261, payable by six annual instalments. The Faculty also prepares students for the diploma examinations of other licensing bodies.

CARDIFF.—The Welsh National School of Medicine is a constituent school of the University of Wales. Composition-fees for six years amount to about £290. There are post-graduate courses and facilities for research. Application for particulars may be made by letter to the Provost or Secretary.

CORK.—University College is a constituent college of the National University of Ireland. The calendar (price 6d.) is obtainable from the Secretary.

DUBLIN.—Royal College of Surgeons' Schools of Surgery are attached to the Royal College of Surgeons. The cost of obtaining the conjoint diplomas is estimated at £185 18s. Scholarships and prizes are obtainable. A syllabus may be obtained from Mr. Alfred Miller, Registrar, Royal College of Surgeons.

School of Physic, Trinity College.—The cost of qualifying amounts to £146 3s. Registrar, G. L. Allen, M.A.

University College.—A constituent college of the National University of Ireland.

DURHAM.—See "Newcastle-upon-Tyne."

EDINBURGH.—University Faculty of Medicine.—The minimum cost of qualification is estimated at £262.

School of Medicine of the Royal Colleges.—The courses of study are suited to University and other qualifications. The minimum cost of education for the triple qualification, including examination fees, is about £180, payable by instalments. Scholarships and bursaries are available. Calendar, 9d., post free, on application to the Dean, Surgeons' Hall, Edinburgh.

GALWAY.—University College.—A constituent college of the National University of Ireland.

GLASGOW.—The University Faculty of Medicine.—The division of studies is similar to that adopted at Edinburgh, and the fees are about equal.

The Anderson College of Medicine, Dumbarton Road, W.—Students are prepared for University and other qualifications.

St. Mungo's College, 86 Castle Street.—The total fees payable for preparation for a Scottish or English qualification amount to rather more than £100.

LEEDS.—University Faculty of Medicine.—The total cost of education for the M.B. degree is estimated at £370. Registrar of the University, Mr. A. E. Wheeler.

LIVERPOOL.—University Faculty of Medicine.—The composition and other fees for a six-years' course are estimated at £375.



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MANCHESTER.—*University Faculty of Medicine.*—The fees for the training and examination for the M.B., Ch.B. degrees are estimated at £307. Courses are also available for other degrees and diplomas. Particulars will be found in the calendar of the University (price 3s.), or may be obtained (price 3d.) on application from the Registrar.

NEWCASTLE-UPON-TYNE.—*University of Durham College of Medicine, Northumberland Road.*—The composition-fee for a complete course of lectures and laboratory work at the College is £132 if paid in advance. For particulars apply to the Dean.

ST. ANDREWS.—*University Faculty of Medicine.*—The inclusive fee for five-years' University and clinical courses for the M.B., Ch.B. degrees is £126, payable in five annual instalments. Advisers of Studies, Professor F. J. Charteris, M.D., Dundee, and Professor D. Waterston, M.D., St. Andrews.

SHEFFIELD.—*University Faculty of Medicine.*—A five-and-a-half years' course is provided for. The composition-fee is estimated at £238, payable in six instalments. Students from outside the British Empire are charged an additional 20 per cent. on all fees.

SWANSEA.—*University College.*—A constituent college of the University of Wales. Registrar, Mr. Edwin Drew.

Dentistry

YOUNG men and women of suitable general education have not been coming forward in anything like the numbers that might have been expected, during the past few years, for training as dental surgeons. As we have remarked under the heading "Medicine" in this issue, there is, on the other hand, a steady increase in the ratio of medical practitioners to population. The scarcity of dentists holding degrees or diplomas, coupled with the distribution of grants to students by the Dental Board of the United Kingdom (the statutory body charged with the administration, under the General Medical Council, of the Dentists Acts), should be an incentive to talented young people to commence the study of an interesting and remunerative profession. As is well known, dental subjects can be studied in association with medical subjects, the two classes having much in common; and in high-class practice or in research it is frequently an advantage to possess the dual qualification.

Dental Training

The registration of dental students is subject to the following conditions:—The candidate must (1) be not less than seventeen years of age, (2) have passed a recognised Preliminary examination (see "Preliminary Examination" under "Medicine") and a Pre-medical examination, and (3) have commenced professional study, by pupilage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry. (A syllabus for students in dental mechanics is issued by the British Dental Association, 23 Russell Square, London, W.C.1.) No portion of practical instruction which is taken prior to the date of registration may be reckoned as a portion of the four years of professional study. It is recommended that instruction in dental mechanics be taken at a recognised dental hospital or school. If any part of such instruction is taken by the candidate as a pupil with a registered dentist, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. Application for registration should be made on the appropriate form to the Registrar of the General Medical Council, 44 Hallam Street, London, W.1. No fee is charged for registration as a student. Examination for a degree or licence in dentistry or dental surgery includes the following subjects:—

(1) Chemistry, Physics, and Biology, in their bearing on

medicine and dentistry; (2) Human Anatomy and Physiology; (3) General Pathology, including bacteriology; (4) Medicine and Surgery; (5) Dental Anatomy and Physiology, Dental Pathology, Dental Surgery (including orthodontics), Dental Materia Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy; (6) Practical Dental Surgery; (7) Practical Dental Mechanics and Metallurgy; (8) Anæsthetics, general and local, employed in dental practice.

Women are not admitted, at present, as students to certain of the dental schools and general hospitals. The L.D.S. of the Royal College of Surgeons of England is usually more valued than a similar qualification obtained elsewhere. The curriculum of the College (the Preliminary and Pre-registration examinations having been passed) is as follows:—

The *First Examination* consists of (1) dental mechanics and dental metallurgy; (2) general anatomy and physiology; (3) special anatomy and physiology of the teeth and associated parts. The examination is held three times a year. Candidates may present themselves for the three parts of the First examination together or separately on production of the required certificates of study.

The *Second Examination* consists of medicine, general pathology, and bacteriology. Candidates must be certified as having attended prescribed courses of study at a recognised institution for two terms.

The *Final Examination* comprises (1) general surgery (including surgical pathology); (2) dental surgery and pathology, and practical dental surgery. Candidates must have been engaged in recognised professional study for four years after passing Part I of the Pre-medical examination, and must have attended certain courses of instruction.

The fees for the various examinations for the licence in dental surgery amount to £21. Inquiries should be addressed to the Director of Examinations, Examination Hall, Queen Square, London, W.C.1. Similar conditions apply to the qualifications of the following colleges:—

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The course of study must occupy at least four years, and not less than three years must be spent at a recognised school. The subjects are taken in three examinations. The examination fees amount to £18 18s. Information may be obtained from Mr. D. Thomson, Clerk to the College, 49 George Square.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The general regulations are similar to those obtaining at Edinburgh. Candidates for the licence must be twenty-one years of age. There are two examinations subsequent to the Preliminary and Pre-registration. Particulars are obtainable from Mr. W. Hurst, Secretary of the Faculty, 242 St. Vincent Street.

ROYAL COLLEGE OF SURGEONS IN IRELAND, St. Stephen's Green, Dublin. There are three examinations, with fees amounting (including diploma fee) to £21. The Registrar will furnish particulars on application.

University Degrees and Diplomas

BELFAST.—Five years' study is compulsory for students for the degree of B.D.S., and four years for candidates for the licence diploma. Examination and degree fees amount to £19 19s.; examination and diploma fees to £14 14s. Regulations and other information may be obtained from the Secretary, Queen's University.

BIRMINGHAM.—The course for the diploma (L.D.S.) occupies four years. The B.D.S. degree cannot be conferred until twelve months after the diploma (or that of an approved body) has been obtained.

BRISTOL.—The curriculum for the degree and for the diploma extends over four years after passing the Preliminary Science examination. There are four examinations for the degree and three for the diploma. Scholarships and prizes are available. Secretary and Registrar, Miss Winifred Shapland.

DUBLIN.—Four and a half years must be spent in study for the degree of bachelor in dental science, and the B.A. degree is prerequisite. The arts and dental courses may be taken separately or concurrently. Details may be obtained from the Registrar of the School of Physic, Trinity College, Dublin. (See also "Ireland.")

Educational Information

DURHAM.—The University grants a licence and two degrees in dental surgery. The diploma course occupies four years, and the primary degree course five years. Fees for examinations and licence, £19 10s. Fees for four examinations and B.D.S. degree, £29 16s. Particulars may be obtained on application to the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

IRELAND.—The course of study for the B.D.S. degree of the National University of Ireland extends over at least four years, and there are four examinations. Constituent colleges, Dublin and Cork. (See also "Dublin.")

LEEDS.—There are three examinations, in addition to a prescribed course of study extending over five years for the degree and four years for the diploma. The matriculation, examination and degree fees together amount to £25 (diploma fees, £24). Dental Warden, Professor T. Talmage Read; Registrar of the University, Mr. A. E. Wheeler, M.A.

LIVERPOOL.—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S.). Four years' study is required for the licence and five and a half years for the degree. Dean of the Medical Faculty, Professor W. J. Dilling.

LONDON.—The degree of B.D.S. is conferred after matriculation and three subsequent examinations, the second of which is taken in two parts. The curriculum extends over five years. Several schools and hospitals in London and the provinces are recognised for training purposes. For particulars apply to the External Registrar (if an external student; otherwise to the Academic Registrar), University of London, South Kensington, S.W.7.

MANCHESTER.—The curriculum for the B.D.S. (four examinations) extends over five and a half years. The diploma course covers four years. Inquiries regarding examinations should be addressed to the Registrar of the University.

ST. ANDREWS.—The University grants a diploma in dental surgery (L.D.S.), after four years' study, of which period three years must be spent in a school or schools recognised by the University, and two years in the University. There are four examinations. There is also obtainable a diploma in public dentistry, the first of its kind. For particulars apply to Dr. Graham Campbell, Adviser of Studies, Dental Hospital, Park Place, Dundee.

SHEFFIELD.—Not less than five years' study is required for the degree and four years' for the diploma. There are three examinations for each. Registrar of the University, Mr. W. M. Gibbons, M.A.

Dental Instruction

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry:—

LONDON

Guy's Hospital Dental School, London Bridge, S.E.1.—Practical training is provided in the hospital. The cost of a five-years' course for the B.D.S. degree of London University is £309 8s. Cost of L.D.S. training (four years), £280. The course can be extended so as to include medical studentship. The cost of the combined medical and dental course is approximately £443. Particulars may be obtained from the Dean of the Dental School, Guy's Hospital, London, S.E.1.

King's College Hospital Dental School, Denmark Hill, S.E.5.—Professional instruction is given in association with King's College. Dental students may also attend other departments bearing on their work—e.g., those devoted to diseases of the throat. The tuition fees for the London degree course cost £274, and for a diploma course £256. Dean, Dr. John A. Drake; Secretary of the School, Mr. S. C. Ranner, M.A.

London Hospital Dental School, Turner Street, E.1.—Full course (including dental mechanics) for L.D.S. diploma, £240. Inquiries should be addressed to the Dean (Professor W. Wright, M.B.).

Royal Dental Hospital of London School of Dental Surgery, Leicester Square, W.C.2.—The cost of the full course, including the fee at a general hospital and examination fees for the L.D.S. diploma, is estimated at £304 6s. 6d. School fees for the London B.D.S. degree amount to £335 5s. Particulars of several scholarships are given in the calendar of the school. Dean, Mr. H. Stobie.

St. Mary's Hospital, Paddington, W.2.—A composition-fee of £73 10s. is charged for a two-years' course of the medical subjects required for the L.D.S. if paid on entry. Dean of the Medical School, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews.

University College Hospital Dental School, Great Portland Street, W.1.—Composition-fees: An annual fee of £63 (inclusive) to cover the four years' curriculum for the L.D.S. diploma. This annual fee includes the life subscription to the Medical Society or the Women's Medical Club. Students are prepared for the University's B.D.S. degree, for which special arrangements as to studies and fees are made. Inquiries should be addressed to the Sub-Dean, Mr. J. L. Dudley Buxton, L.M.S.A., L.D.S.

Westminster Hospital, 12 Caxton Street, S.W.1.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), £70 (or two payments of £36 each). Dean of the Medical School, Sir Stanley Woodmark, M.D.

OUTSIDE LONDON

BELFAST.—*Queen's University Faculty of Medicine.*—The combined class and laboratory fee is £23 12s. 6d. for the first year and £26 5s. for the second year. Entrance-forms and other information may be obtained by applying to the Secretary.

BIRMINGHAM.—*University School of Dentistry.*—The courses of instruction qualify also for the diplomas in dental surgery of all licensing bodies. The Birmingham B.D.S. course costs approximately £360, and the diploma course £310. Particulars may be obtained from the Dean of the Medical Faculty or the University Registrar.

BRISTOL.—*University Faculty of Medicine (Dental Surgery).*—The inclusive cost of the curriculum is estimated at £273 in the case of the degree, and £250 for diploma students. Communications should be addressed to the Secretary and Registrar of the University.

DUBLIN.—*School of Dental Science, Trinity College.*—The total cost of obtaining the B.Dent.Sc. degree is given in the regulations as £335 19s. 6d., including arts and dental courses and examination and degree fees. For details apply to the Registrar of the School of Physic.

Royal College of Surgeons' Schools.—The College grants a diploma in dental surgery. Cost of tuition,



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£211; examination fees, £21. Registrar, Mr. Alfred Miller.

DUNDEE.—*University of St. Andrews Dental School*, Park Place. Composition fees amount to about £192. Adviser of Studies, Dr. Graham Campbell.

DURHAM.—(See "Newcastle-upon-Tyne.")

EDINBURGH.—*School of Medicine of the Royal Colleges*.—Communications should be addressed to Dr. John Orr, Dean of the School, Surgeons' Hall, Edinburgh.

Incorporated Dental Hospital and School, 31 Chambers Street.—General hospital attendance and clinical instruction are taken at the Royal Infirmary. The tuition and R.C.S. Edin. diploma fees amount to £132 13s. 6d. If the "triple qualification" (see "Medicine") is taken concurrently, the minimum cost is £212 2s. 6d. Dean of the School, Mr. A. C. W. Hutchinson, M.D.S., L.D.S., Secretary, Mr. G. M. Stuart, W.S., 20 York Place.

GLASGOW.—*Incorporated Dental Hospital and School*, 211 Renfrew Street, C.3. Estimated cost of curriculum and licence examinations, £245, plus £29 for instruments. The new Hospital is available for students. Communications regarding the School should be addressed to the Dean at the Hospital.

LEEDS.—*Dental Department of the University*.—The cost of education for the degree of the University is given in the University Calendar as £405 (£366 for the diploma). Registrar of the University, Mr. A. E. Wheeler, M.A.

LIVERPOOL.—*University School of Dental Surgery*.—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and the higher degree of M.D.S. School fees for the B.D.S. (five years' training) amount to £250; those for the L.D.S. (four years' course) to £198. Director of Dental Education, Professor W. H. Gilmour, M.D.S.

MANCHESTER.—*Dental Department of the University*.—Students are prepared for the B.D.S. of the University, the diploma of the University, or that of the R.C.S. Eng. and other licensing bodies. Before registration shall be considered as complete every student entering on a degree course in the Faculty of Medicine will be required to produce to the Dean of the Medical School his Matriculation certificate or certificate of exemption. In the case of a certificate of exemption, the certificate of the examination on which exemption was granted must be produced. The Dean of the Medical School of the University answers inquiries concerning classes. A prospectus of the Dental Department (price 3d.) is issued by the University Press.

Victoria University of Manchester, School of Dental Surgery, Oxford Road.—The total fees payable to the University, the Hospital, and the Infirmary for courses of study, examinations, the library, etc., and the conferment of the degree or diploma are approximately as follows:—For the B.D.S. Manch., £312; for the L.D.S. Manch., £244 13s.; for the L.D.S. R.C.S. Eng., £253. The total fees for women are in each case £1 11s. 6d. less. The required outfit in each case (tools, instruments and books) costs about £60 in addition. Prospectus on application to The Professor of Dental Surgery, The Dental Hospital, Oxford Road, Manchester, 13.

NEWCASTLE-UPON-TYNE.—*University of Durham College of Medicine (Dental Department)*.—Composition fees (including mechanical pupilage) for the degree amount to about £236, for the diploma to about £221. For particulars apply to the Dean of the College.

ST. ANDREWS.—(See "Dundee.")

SHEFFIELD.—*Dental Department, University Faculty of Medicine*.—Students are prepared for the degree (composition fees, £250, payable by instalments) or the diploma (composition fees, £220, payable by instalments) of the University. Students from outside the British Empire are charged an additional 20 per cent. on all fees. Registrar, Mr. W. M. Gibbons, M.A.

Science

WHEN contemplating a course of study for a science qualification some consideration should be paid to the manner in which the knowledge obtained is to be subsequently applied. This has the advantage of narrowing down the range of subjects from which to choose and at the same time directs the studies along the lines which will be most useful at a later date. Though there is no lack of persons holding a science qualification, the number holding a pharmaceutical diploma in addition is comparatively small, and the possession of two certificates is a great advantage to those who aspire to public appointments. In deciding on the choice of a career it should be borne in mind that the academic side is concerned mainly with research and other purely professional matters, and tends to be more congenial than the work of the industrial chemist. The latter, however, in this highly technical age, can command, in the majority of cases, a greater remuneration—a matter of some importance to be considered. The present-day works chemist is an indispensable member of every large manufacturing house, and, if he can combine his scientific knowledge with some engineering ability, his position becomes an exceedingly important one. Many technical appointments in wholesale houses and hospital dispensaries are held by persons possessing pharmaceutical qualifications with B.Sc., or F.I.C. qualification, or both, in addition. While many students take university degrees after full-time courses, it is to the degrees obtainable externally that the average pharmacist will turn; by this means spare time can be utilised to the greatest possible advantage. Scholarships carrying free instruction and maintenance allowance are awarded annually as a result of science examinations held by the Board of Education. The Salters' Institute awards grants in aid to employees (over seventeen years old) in chemical works in or near London who desire to extend their education in chemical industry. Fellowships in research are offered annually. Applications for grants and fellowships should be sent in early in June to the Director, Salters' Institute of Industrial Chemistry, St. Swithin's Lane, London, E.C.4.

Science Degrees

The regulations for a degree in science of London University require the student to pass three examinations, viz.: (1) The Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. Regulations are published for (a) internal students who register as such and follow approved courses of instruction, and (b) external students who are examined without complying with a curriculum.

For particulars of Matriculation, Special University Entrance examination and External examinations apply to the External Registrar, University of London, South Kensington, S.W.7. Regulations for Internal students are to be obtained from the Academic Registrar. The statutes of the University require all external students to register.

The Intermediate examination in science commences on the first Monday in July. An additional Intermediate examination is held, in London, in the more usual subjects only, commencing on the fourth Monday of November. A candidate must have passed the Matriculation examination not later than the preceding January or June, respectively, or otherwise have fulfilled the conditions of exemption. Candidates are required to pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; (8) the general principles of biology; (9) general physiology; (10) military studies; and (11) geography. At least one of the four subjects selected must be taken from among the first three. The fee is £6 6s.

The Final examination for B.Sc. takes place once a year, commencing on the third Monday prior to the first



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Monday in July. The B.Sc. degree is obtainable by passing the B.Sc. degree (general) examination in three subjects, or taking the B.Sc. degree (special), an examination of a specialised nature in a principal subject and a subsidiary subject. Successful candidates will be awarded First-class Honours, Second-class Honours, or a Pass Degree. An additional general examination is also held, commencing on the first Monday in November in the more ordinary subjects. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously. The fee is £6 6s. There are fifteen prescribed subjects to select from. The degrees Master of Science (M.Sc.), Doctor of Philosophy (Ph.D.), and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (*cum curriculo*), usually three years after matriculation, with examinations at the end of each session.

Diplomas in Chemistry

The Institute of Chemistry of Great Britain and Ireland conducts examinations for the associateship of the Institute (A.I.C.). A certificate in Branch E (chemistry (including microscopy) of food and drugs, and water) is nowadays a necessity to obtain an appointment as a public analyst, and this branch is attractive to would-be pharmacist associates. The Regulations for the admission of students, associates and fellows are obtainable from the Registrar of the Institute, 30 Russell Square, London, W.C.1.

STUDENTSHIP.—Candidates should register at the Institute (see above) as students at the commencement of their training. They must be British subjects, not less than sixteen years of age, and have passed an approved preliminary examination, and at the time of application be recommended by a teacher of chemistry at a recognised institution, or a Fellow of the Institute. Annual registration, 10s.

ASSOCIATESHIP.—The Examination for Associateship (A.I.C.) consists of general theoretical chemistry (three papers) and practical chemistry, and occupies six days. Fee, £5 5s. It is open to: (i) Candidates who have completed four years' systematic day course of study in prescribed subjects at an institution approved by the Council; (ii) candidates who in lieu of first year above under (i) have taken two years' full-time study at a secondary school recognised by the Board of Education or had two years' experience in the laboratory of a Fellow of the Institute; (iii) candidates who in lieu of a fourth year have had one year's satisfactory experience under a Fellow or in an approved laboratory or works; (iv) candidates who have obtained a degree, including chemistry in the final examination, and have taken a further year's training in chemistry at a recognised institution or have had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works. (v) Applications from candidates (over 25 and with at least eight years in practice) who do not comply with the above requirements are also considered. (vi) Applications from candidates (over 30 who have been engaged in the study and practice of chemistry for at least twelve years and attained a responsible position) who do not comply with the above requirements are also considered. The

synopsis of the examination for the associateship is as follows:—

(a) *General Theoretical Chemistry*.—Candidates are required to show a thorough acquaintance with the fundamental laws and theories of chemistry, together with the properties and the methods of preparation of the elements and their compounds, both inorganic and organic, and with the application of chemistry in the arts and industries. Three papers, any of which may contain questions in inorganic, organic and physical chemistry, will be set.

(b) *Practical Chemistry*.—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical instruments employed by chemists.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with first or second class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

FELLOWSHIP.—Admission to the Fellowship is open by examination to associates of three years' standing who are not less than twenty-four years of age. An Associate who desires to be exempted from such examination will be required to produce satisfactory evidence that either (i) he has carried out original research of sufficient merit; or (ii) he has devised processes or inventions of sufficient merit; or (iii) that having been engaged in important analytical, industrial, consulting or other work of a general or specialised character, he is, in the opinion of the Council, possessed of sufficient knowledge and ability.

The Fellowship examination is more specialised, there being various branches for which the candidates may enter. These are: (A) inorganic chemistry; (B) physical chemistry; (C) organic chemistry; (D) biochemistry; (E) the chemistry (including microscopy) of food and drugs and water; (F) agricultural chemistry; (G) industrial chemistry.

Science Schools

Courses of science instruction are available at the following institutions. These in general cover the subjects for London science degrees, courses for the National Certificates in Chemistry awarded by the Board of Education (as to which Rules No. 100, price 2d., is obtainable at the Stationery Office), and for the Institute of Chemistry examinations. The student should ascertain from the secretary of the institution whether the courses available cover the specific curricula for the examinations he intends to enter:—

ABERDEEN.—*Robert Gordon's Technical College* includes a well-equipped chemical department. Day classes, £7 per term. Evening classes, from 15s. to 20s. per session.

ABERYSTWYTH.—*University College of Wales*.—Three or four year courses for degree in science, £20 per session. Registration fee, £1 per annum.



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BANGOR.—*University College of North Wales.*—Composition fees for a science student amount to £24 1s. per session, including registration and apparatus fees.

BARNESLEY.—*Technical College.*—Day courses for B.Sc. of Sheffield University, and in fuel and glass technology.

BARROW-IN-FURNESS.—*Technical College.*—Day and evening classes in chemistry, botany and physics; fees per session, day classes, £3 3s.

BELFAST.—*Queen's University.*—Complete course of applied science and technology; £66 3s.

BIRMINGHAM.—*University.*—Courses in pure science.—*Central Technical College,* Suffolk Street.—Part-time afternoon classes in chemistry, botany and physics. *Aston Technical College.*—Day and evening courses in chemistry and physics; sessional fees, day £1 to £4, evening 10s. 6d.

BLACKBURN.—*Municipal Technical School.*—Day and evening classes are available in chemistry, physics and botany.

BOLTON.—*Municipal Technical College.*—Evening courses in chemistry; fees, 5s. to 15s. per session.

BOURNEMOUTH.—*Municipal College.*—Science courses for B.Sc. London degrees, £17 17s. per session (three terms, day classes). Evening classes in science and technology, 12s. 6d. to £1 per session of two terms.

BRADFORD.—*Technical College.*—Day and evening courses for University of London degree examinations.

BRIGHTON.—*Technical College.*—Day courses for University of London degree examinations, including the B.Pharm. degree and for the A.I.C.

BRISTOL.—*University.*—Degree courses for B.Sc.; fee, £31 10s. M.Sc., Ph.D. and D.Sc.

BURNLEY.—Day and evening classes are held at the Municipal College in chemistry, physics and botany; fees, £1 1s. to £2 12s. 6d. per course (part-time).

BURY.—Evening chemistry courses (extending over three years) cost 5s. to 10s. per session.

CAMBRIDGE.—*University.*—For particulars apply to the Registrar.

CORK.—*University College.*—Courses for B.Sc. degree.

DARLINGTON.—*Technical College.*—Evening courses in chemistry, physics and botany; 20s.

DUNDEE.—*University College.*—Day classes in botany, chemistry and physics. *Technical College.*—Central institution for eastern counties of Scotland for technical instruction.

EDINBURGH.—*University.*—Degree courses for B.Sc. *Heriot-Watt College,* Chambers Street (affiliated to the University of Edinburgh).—Day courses extending over four years for the B.Sc. degree in technical chemistry, University of Edinburgh, and the B.Sc. degree in chemistry, University of London; also for the diploma of the College in applied chemistry and the associateship of the Institute of Chemistry. Fees from £20 to £31 10s. Evening classes are also held from the end of September to March in organic and inorganic chemistry, applied chemistry and pharmaceutics.

EXETER.—*University College.*—Degree course in science. Pharmaceutical preliminary scientific examination.

GALWAY.—*University College.*—A constituent college of the National University of Ireland. Fees, for courses leading to the B.Sc. degree, £2 per session.

GLASGOW.—*University.*—Degree courses in science.

HALIFAX.—*Municipal Technical College.*—Day courses in chemistry, physics and dyeing, £15 per session; evening classes, from 14s. to 17s. per subject.

HUDDERSFIELD.—*Technical College.*—Full-day and evening courses in chemistry, physics, botany and technological subjects, including manufacture of dyes. Courses for Institute of Chemistry's examinations. Sessional fees: Day, £12 12s. to £21; evening from 10s., according to requirements.

HULL.—*Municipal Technical College,* Park Street.—Day, B.Sc. (Lond.) and A.I.C. courses, £2 2s. to £10 per term; day and evening courses for pharmacists and dispensers, £1 1s. per term. Special courses in agriculture, materia medica, oil extraction, paint and varnish manufacture.

LANCASter.—*The Storey Institute Technical College.*—Evening or day classes in matriculation and applied science; fees, 6s. 6d. to 17s. 6d. per session.

LEEDS.—*University.*—Degree courses in science; composition fee, £42. *College of Technology.*—Courses for A.I.C., College diploma and National certificates and diplomas.

LIVERPOOL.—*University.*—Degree courses in science.

LONDON

Imperial College of Science and Technology, South Kensington, S.W.7.—This college includes as integral parts the Royal College of Science, the Royal School of Mines and the City and Guilds (Engineering) College. The pre-graduate courses of study lead up to an associateship and B.Sc. degree in biology, botany, chemistry, geology, mathematics, physics and zoology at the Royal College of Science; in mining, mining geology, metallurgy and oil technology at the Royal School of Mines; and in engineering (civil, electrical and mechanical) at the City and Guilds (Engineering) College. Candidates for admission to associateship and B.Sc. courses should have qualified for matriculation at the University of London, and they must satisfy College requirements as stated in the calendar. Post-graduate courses and research may be undertaken by qualified candidates in all the subjects stated, and many others which are detailed in the prospectuses. The post-graduate work may lead up to the diploma of membership of the Imperial College and to the M.Sc., Ph.D., or D.Sc. of the University of London. The fees are £62 10s. per session, except for research, which is £22 10s., and certain post-graduate courses including agricultural chemistry, foods and drugs, and chemical technology, which are also £22 10s. per session. There are many fellowships, scholarships and prizes available for award. Any of the college prospectuses will be sent free on application to the Registrar, Imperial College, S.W.7.

Battersea Polytechnic, Battersea Park Road, S.W.11.—Degree courses for B.Sc. (University of London) and for A.I.C. The course for full-time day students extends over three years, and for evening students five years. Courses for F.I.C. (branch E.). Evening courses in chemical technology include food and drugs, bacteriology, oils, fats and petroleum technology and photography. Facilities are available for research work.

Birkbeck College (University of London), Breams Buildings, Fetter Lane, E.C.4.—Complete evening courses for University of London science degrees and other examinations in science. Composition-fees for Intermediate or Final science examination, £5 per term, or £12 per session.

Borough Polytechnic, Borough Road, S.E.11.—Courses on foodstuffs, bacteriology, cold storage and refrigeration, oils, colours and varnishes, printing inks, synthetic resins and plastic moulding. Classes in chemistry are also held.

Chelsea Polytechnic, Manresa Road, Chelsea, S.W.3.—Day and evening courses in chemistry and botany leading to the B.Sc., M.Sc. and Ph.D. Degrees of London University and the A.I.C. (Institute of Chemistry). Special courses for F.I.C. (Food and Drugs). Classes in applied chemistry, hydrogen ion measurements, dyes and drugs, photomicrography, etc. Research in physical, organic and cellulose chemistry. Fees: day, £21 per session; evening, £1 to £3 per session (three terms).

East London College, Mile End Road, E.1.—Classes in chemistry, mathematics, physics and botany.—Intermediate, Final and Honours B.Sc., and courses for the diplomas of the Institute of Chemistry. Fee, £22 10s. per annum.

King's College, Strand, W.C.2.—Courses are available in the Faculty of Natural Science for students preparing for B.Sc. degree and Institute of Chemistry examinations. Annual fees: Intermediate course, £36 15s.; Final course, £52 10s.

Northern Polytechnic, Holloway, N.7.—The composition fees for the Intermediate and Final B.Sc. courses are: Day, £20 per session; evening, £3 per session. Evening classes in chemistry, botany, physics and photography cost from 20s. to £3 per session.

Royal Holloway College, Englefield, Surrey.—For women students only, mainly residential. The college is a school of the University of London, and the degree courses include science.

Sir John Cass Technical Institute, Jewry Street, Aldgate, E.C.3.—Evening courses in chemistry, physics, mathematics, microbiology, brewing, malting, biology, zoology, botany, metallurgy, geology, and fuel and petroleum technology. Sessional fees (September to July): 20s. one evening per week, 35s. two evenings per week, plus 10s. for each additional evening per week; those under eighteen and those between eighteen and twenty-one engaged in trade are admitted at half fees.

University College, Gower Street, W.C.1.—Fees for B.Sc. (general or special) course for three sessions amount to £147. Facilities for post-graduate study: fee, £29 8s. for two sessions, and £22 1s. for one session. Reduced fees in the case of honours graduates who have taken their undergraduate course at the college.

Wandsworth Technical Institute, High Street, Wandsworth, S.W.18.—Day and evening classes in chemistry, physics and



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botany. Fees: day, according to course; evening, full course £os. (over twenty-one), 15s. (under twenty-one).

West Ham Municipal College, Romford Road, E.15.—Day and evening classes for B.Sc. (London). Fees: day, £9 9s. to £18 18s.; evening, 14s. to 28s.

MANCHESTER.—*Victoria University.*—Courses for B.Sc. degree in science. These include ordinary, honours and general honours courses. The degrees of M.Sc., Ph.D., and D.Sc. are conferred on graduates for research.

College of Technology also provides specialised instruction in applied chemistry leading to the Manchester University degrees of B.Sc. Tech., M.Sc. Tech., and Ph.D., and to certificates in the Faculty of Technology. Evening courses are held for the A.I.C. examination.

Tutorial College (Grime's).—Revision course in botany, chemistry and physics; composition fee for the three subjects, £10 10s.

NEWCASTLE-UPON-TYNE.—*Armstrong College (University of Durham).*—Tuition fees for degree course in pure science, £35 per annum. Registration fee, subscriptions to students' societies and examinations fee, £7 13s. 6d. per annum.

NORWICH.—*Technical College.*—Day classes are held in chemistry, physics and biology, and evening classes in botany, chemistry and physics. Pharmaceutical chemistry, organic chemistry and Latin classes are available for students who have been successful in the Preliminary Scientific examination.

OXFORD.—*University.*—For particulars apply to the Registrar. *Technical School.*—Evening classes in chemistry.

PLYMOUTH AND DEVONPORT.—*Technical College.*—Day and evening courses of B.Sc. Lond. Sessional fees: Day, £18 15s. to £25; part-time day classes or evening classes, £4.

PORTSMOUTH.—*Municipal College.*—Instruction in science and technological subjects. Fees, £2 2s. to £8 8s. per term for full-time day courses; 7s. 6d. to 25s. per session for evening courses.

READING.—*University.*—B.Sc. course, £35 per session. Preliminary Scientific examination of the Pharmaceutical Society, £28 per session. Evening Classes in physics, chemistry and botany.

ROCHDALE.—*Municipal Technical School.*—Evening classes in chemistry and botany.

ST. ANDREWS.—*United College.*—Inclusive fee for courses for B.Sc. degree in pure science, £94 10s.

SALFORD.—*Royal Technical College.*—Three years' full-time day course, for which a diploma, endorsed by the Board of Education, is awarded. Day diploma courses and evening courses in chemistry and physics are recognised by the Institute of Chemistry.

SHEFFIELD.—*University.*—Degree courses in science. The composition fee for a three-year course is £105, payable in three annual instalments of £35.

SOUTHAMPTON.—*University College.*—B.Sc. course composition-fee, £32 per session. Evening classes in science subjects, £1 to £5 per course.

SWANSEA.—*University College.*—Day courses are held for degrees in science. Composition fees for a full-time degree or diploma course in pure or applied science, £20 per session.

WIGAN.—*Wigan and District Mining and Technical College.*—Full-time day courses in chemistry and general science for honours degree (B.Sc.) of London University, A.I.C., national certificates in chemistry, first medical and pharmaceutical examinations. Part-time day and evening courses.

Veterinary Surgery

By the Veterinary Surgeons Act, 1881, it is provided that no person other than a person on the Register of Veterinary Surgeons may take or use "the title of Veterinary Surgeon or Veterinary Practitioner or any name, title addition or description stating that he is a veterinary surgeon or a practitioner of veterinary surgery, or of any branch thereof, or is specially qualified to practise the same." For many years prior to the present year there was a steady diminution in the numbers of the veterinary profession. The 1934 Register shows a slight increase over the 1933 figure, but the supply is not expected to overtake the demand for many years. Indeed, in certain branches of the profession the demand has been notably increased. It is true that the work of the practitioner has somewhat changed in char-

acter, for while the horse is less important, other farm animals are more valuable, and pets are receiving more attention. Appointments in connection with the preservation of public health and the prevention of animal disease are becoming more numerous and better paid. Candidates who desire to enter upon the course of study to qualify as veterinary surgeons must first pass a recognised examination in general education and submit to the Royal College the certificate so gained for the approval of the Council (10 Red Lion Square, London, W.C.1). Candidates over twenty-one years of age who are not in possession of one of the certificates in general education, may under exceptional circumstances be admitted to the veterinary course at the discretion of the Council, provided they submit with their application evidence of previous education. The professional course of training lasts over a period of five years and must be taken at one of the five veterinary schools affiliated to the Royal College. At the end of each school year an examination is held, the subjects being as follows:—

First Professional Examination.—Chemistry, physics, biology, botany, zoology.

Second Professional Examination.—Physiology, biochemistry, histology, embryology, animal husbandry.

Third Professional Examination.—Anatomy, pharmacology and therapeutics, practical pharmacy, animal husbandry.

Fourth Professional Examination.—Pathology, veterinary parasitology.

Fifth Professional Examination.—Veterinary medicine, meat inspection, surgery, obstetrics and jurisprudence.

The examination fee payable to the Royal College of Veterinary Surgeons is £6 6s. for each examination, or £4 4s. for re-examination in the same class. On passing the final examination, a fee of £5 5s. is payable for registration. In addition to the post-graduate, several entrance scholarships are open at the affiliated colleges. The Royal College also grants a diploma in Veterinary State Medicine (D.V.S.M.).

Veterinary Colleges

LONDON.—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.1.—Educational fee for five years' course of instruction, £131 5s., may be paid in five instalments. There are also library and other fees amounting to £15. Fees for occasional students are from £3 3s. to £8 8s. per subject, and for those taking the B.Sc. degree in veterinary science of the University of London additional fees totalling £15 15s. Secretary, Mr. T. C. Wight.

EDINBURGH.—*Royal (Dick) Veterinary College*, Summerhall (founded 1823).—Class fees for the complete curriculum amount to approximately £135. There is also a matriculation fee of 10s. 6d. and an athletic fee of 10s. payable by all students at the beginning of each session. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

GLASGOW.—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill. Full particulars are obtainable from the secretary. Principal, Professor A. W. Whitehouse, M.A., M.R.C.V.S.

DUBLIN.—*Veterinary College of Ireland*, Shelbourne Road, Ballsbridge.—The College is conducted by the Department of Agriculture. The tuition fees amount to £21 for each session. Principal, Professor J. F. Craig, M.A., M.R.C.V.S. Particulars may be obtained from the Registrar.

LIVERPOOL.—*The University Veterinary School* gives a university training for the M.R.C.V.S. and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director.

A member of the Royal College who has been engaged in the practice of his profession for two years or upwards may present himself for examination for the diploma of Fellowship (F.R.C.V.S.). Veterinary science degrees are granted by several universities, including Edinburgh, Liverpool and London, to candidates who matriculate and take the prescribed course of study.



Optical Diplomas

THE training necessary to obtain one of the recognised optical diplomas should be regarded as the minimum to be undertaken before commencing business as an optician. Though the practice of sight-testing and spectacle fitting is not confined to persons who have evidence of qualification, possession of such a document is eminently desirable. If possible chemists should take the full time course at one of the schools mentioned below, but many have successfully pursued their studies mainly by correspondence. Matriculation or equivalent standard of preliminary education is required by one examining body. Scholarships are available at the Northampton Polytechnic Institute, London, and to students about to prepare for the examinations of the British Optical Association at certain centres.

The Diploma Schemes

THE WORSHIPFUL COMPANY OF SPECTACLE MAKERS holds its examinations (a) Fellowship, (b) Honours, in London twice yearly and occasionally in the provinces. The former is divided into three parts; candidates over the age of seventeen years may enter for Part I, but not for Parts II and III until they have attained eighteen years. In no case can the diploma be taken up before the age of twenty-one. No candidate is passed in any section of Parts II or III unless he has satisfied the examiners in all sections of Part I. The subjects of the examination are as follows:—*Part I:* (a) A practical examination in the measurement of focal powers of lenses and an experiment selected from optics and ophthalmic lenses of (c); (b) a *viva voce* examination on (c); (c) a written paper on light, optics and ophthalmic lenses; (d) a practical examination in neutralisation, setting and marking for edging of lenses and prisms. *Part II:* (e) a practical examination in face measurement, frame measurement and frame manipulation; (f) a *viva voce* examination on (e) and (g); (g) a written paper on visual optics and refraction, ophthalmic instruments, frame fitting and measurement; (h) a practical examination involving subjective and objective testing of living subjects. *Part III:* (j) a practical examination on (l); (k) a *viva voce* examination on (l); (l) a written paper on anatomy and physiology of vision and recognition of abnormal ocular conditions.

The Honours examination, which is open to diploma holders who have passed the Fellowship examination at least twelve months previously, is a more advanced test for those who are interested in the fundamental principles of their work.

The fees are as follows:—Fellowship: Part I £4 4s., Part II £4 4s., Part III £3 3s.; Honours: £5 5s. Full particulars of the examinations may be obtained from the clerk to the Company, 36 Furnival Street, London, E.C.4.

THE BRITISH OPTICAL ASSOCIATION, Brook Street, London, W.1, conducts a Preliminary, a Dispensing, a Fellowship, and an Honours examination, the first-named being in general education and the others in optics. No candidate will be accepted for the Fellowship examination who has not previously passed the Preliminary or an examination of matriculation standard. The Fellowship examination is divided into five sections, as follows:—(A) Estimation of refractive errors; (B) physiologic optics; (C) mechanical and physical optics; (D) anatomy and physiology; (E) recognition of pathological conditions. The Dispensing examination consists of (C) of the Fellowship. The Honours examination is in the following subjects:—(A) Advanced physiological optics; (B) ocular embryology and physiology; (C) recognition of pathologic conditions of the eye; (D) ethics and etymology. The examination fees are:—Preliminary, £2 12s. 6d.; Dispensing, £2 2s.; Fellowship, £10 10s.; Honours, £5 5s. The Preliminary examination is held annually and written papers of the Fellowship and Honours examinations are held twice yearly in

London, Manchester and Edinburgh. Practical examinations in the Fellowship, Honours and Dispensing grades are held in London twice yearly in May and November; annually in Manchester, Liverpool and Edinburgh, and occasionally in other centres. Fellowship candidates, prior to examination, must submit evidence of at least 500 hours' training in mechanical and technical optics, 100 hours' clinical training at a recognised institution, of attendance at an approved course in clinical experience specifically arranged with abnormal or pathological subjects at a recognised institution, and of twelve months' employment or business training, with an approved optical firm or optician. This evidence to be in addition to the mechanical and technical training.

Candidates for the Preliminary examination must have attained the age of sixteen years. All examinations are open to persons of both sexes over eighteen years of age. Successful candidates over the age of twenty-one, or on attaining the age of twenty-one, will be required to take up membership of the Association. Certificates are not supplied until the applicant has reached the age of twenty-one, and thus entitled to become a member of the Association. The full prospectus, together with a list of the approved institutions, may be obtained from the secretary.

THE NATIONAL ASSOCIATION OF OPTICIANS has instituted a diploma scheme under which examinations are held in January and July and at such other times and in places as the Council may determine. Candidates must present certificates of approved preliminary education. There are two examinations, the First and Final. The former is open to candidates under the age of twenty-one, but no certificate is issued until they are fully qualified. The subjects are as follows:—

First: Written examination in general and practical optics, and optical calculations; oral examination in general and practical optics, and optical calculations. Fee, £3 3s.

Final: A written examination in ophthalmic lenses, refraction and visual optics; a written examination in anatomy, physiology and diseases of the eye; practical lens neutralisation and frame measurement; practical sight-testing; oral examination in visual optics; retinoscopy and ophthalmoscopy; oral examination in anatomy, physiology and diseases of the eye. Fee, £5 5s.

The examination syllabus and entrance forms may be obtained from the Secretary, 130 Princes Road, Liverpool, 8.

Optical Instruction

The following are among the principal schools where the necessary instruction in preparation for the examinations may be obtained:—

NORTHAMPTON POLYTECHNIC INSTITUTE, St. John Street, London, E.C.1.—The courses provided by the Department of Applied Optics are organised in two divisions, namely (1) for ophthalmic and dispensing opticians and (2) for optical engineers, optical instrument makers, glass workers and spectacle makers. In the ophthalmic section complete theoretical, practical, clinical and workshop training is provided, by means of day courses and evening courses, in extensively equipped laboratories, workshops and clinic. The courses cover the ground required for the Fellowship and Honours examinations of the S.M.C. and B.O.A. The fees range from 30s. per session for evening courses to £20 for the full-time day courses. Scholarships tenable at the two-years' full-time day courses are offered by the Worshipful Company of Spectacle Makers, The Aitchison Memorial Fund and the Governing Body of the Polytechnic; the British Optical Association offers scholarships tenable in the day or evening courses. Evening classes commence on September 24 and day classes on October 1. The prospectus and full particulars will be sent on application.

THE SCHOOL OF OPTICS, LTD., 2 Guildford Place, London, W.C.1, where, under the direction of Mr. Lionel Laurance and Mr. Oscar Wood, students are prepared



Educational Information



for the recognised qualifying examinations, is well-fitted up and thorough training is given. The complete full-time course (fee £31 10s.), which commences in May and November of each year, covers the entire syllabus. The part-time combined course (fee £14 14s.), which can be commenced at any time, consists of homework by correspondence, supplemented by classes held during the month preceding the examination, and on Wednesday and Thursday afternoon of every week. The School is recognised by the British Optical Association for mechanical, technical and clinical training.

BRITISH OPTICAL INSTITUTE, LTD., Fern Lodge, 20a Grove Road, Brixton, London, S.W.9.—Full courses cover the entire syllabus of all optical examinations. Afternoon classes and clinic, at which both normal and abnormal cases are dealt with, are held all the year round on two days a week in order to enable students to carry out all branches of practical work. Evening classes are held during the three months and daily revision classes during the month preceding each London examination. There has also been arranged a correspondence course which is recognised as part of the 600 hours' mechanical and technical training required by the regulations of the British Optical Association. The Institute is a recognised training centre for all sections of the Fellowship examinations in connection with the regulations of the B.O.A. Full particulars will be sent on request.

REFRACTION HOSPITALS.—The lectures and demonstrations arranged in connection with the granting of the hospital certificate commence in October. The subjects include physiology, pathology, embryology, methods of examination, use of drugs and hospital routine. Post-graduate students in ophthalmic optics may attend the hospital without taking the examination. The three hospitals have been recognised by the British Optical Association for clinical experience, and London for clinical training in addition. The London and Glasgow Hospitals now give complete optical training for the S.M.C. and B.O.A. examinations. Full particulars can be obtained from 58-60 Newington Causeway, London, S.E., or 51 St. Paul's Street, Leeds, or 26-28 Richmond Street, Glasgow, C.1.

MR. C. A. SCURR, F.S.M.C., F.B.O.A., chemist and druggist, 50 High Street, Barnet, prepares candidates for either of the foregoing examinations. The courses, being mainly correspondence, are particularly suitable for those desiring an optical qualification by spare-time study. The practical work is usually performed during a visit to London, when the practical and revision classes are held, just prior to the examination. The fees vary from £5 5s. to £9 9s., according to the examination.

CENTRAL TECHNICAL COLLEGE, Suffolk Street, Birmingham, has three-year part-time courses which meet the requirements of the British Optical Association and the Spectaclemakers' Company.

CARDIFF TECHNICAL COLLEGE is providing a full course of training for students who intend to become ophthalmic or dispensing opticians. The full course extends over two years, covering the ground required for the Honours and Fellowship Examinations of the British Optical Association and other examinations of a similar character such as those of the Worshipful Company of Spectacle Makers. The fee for the course is £20 per session and there is a Students' Union fee of £1 1s.

MUNICIPAL COLLEGE OF TECHNOLOGY, Manchester, provides a full-time day course in applied optics extending over a period of two years. Candidates are required to pass an entrance examination (unless they have passed an approved equivalent examination), on which also a British Optical Association Scholarship of the value of £40 per annum is awarded. The College also conducts evening classes which cover the examination syllabuses of, and which are recognised by, the British Optical Association. Students will be enrolled during the week beginning September 24. The session begins on October 1.

NORTH STAFFORDSHIRE TECHNICAL COLLEGE, Stoke-on-Trent, is a recognised institution under the British Optical

Association's regulations for mechanical, technical and clinical training.

RUTHERFORD TECHNICAL COLLEGE, Newcastle-upon-Tyne, conducts courses of lectures and laboratory work designed to meet the requirements of students preparing for the B.O.A., S.M.C. and similar examinations. The full training extends over three years (three evenings per week) and the fees range from 25s. to 35s.

WEST HAM MUNICIPAL COLLEGE, Romford Road, Stratford, London, E.15, holds classes, conducted by Mr. W. Swaine, B.Sc., F.Inst.P., F.S.M.C., in pure and applied optics, on Thursday afternoons (2.0-5.0) and evenings (6.9-30). These are suitable for ophthalmic, dispensing and instrument opticians, and cover the syllabuses of the optical examinations. The College is recognised by the British Optical Association for mechanical and technical training. Fees: For East Ham and West Ham residents, 14s.; other students, £1 8s. Enrolment September 17 to 21. Classes commence September 24. Apply for prospectus and other particulars to the Principal.

THE COLLEGE OF OPTICS, 12 Renfield Street, Glasgow, holds all-day, part-time and postal courses. Classes are also held in Edinburgh, Dundee and Aberdeen. The Principal is Mr. T. S. Baird, F.S.M.C.

HERIOT-WATT COLLEGE, Edinburgh, has arranged a course in ophthalmic optics which extends over three years and meets the requirements of the Worshipful Company of Spectacle Makers and the British Optical Association. The course has been recognised by the latter body for mechanical, technical and clinical training. A composite fee of £2 2s. is charged for each year of the course.

Books for Students

The following list contains some of the popular textbooks for pharmaceutical students:—

BOTANY

- "Pharmaceutical Botany" (C. & D. Office), 5s.
- "Practical Botany for Beginners," Bower and Gwynne-Vaughan (Macmillan), 4s.
- "Text-book of Botany for Medical and Pharmaceutical Students" and "Practical Botany," James Small (Churchill), 21s. and 10s. 6d. respectively.

CHEMISTRY

- "Text-book of Inorganic Chemistry," Senter (Methuen), 7s. 6d.
- "Modern Inorganic Chemistry," Mellor (Longmans), 12s. 6d.
- "Inorganic Chemistry," Lowry (Macmillan), 20s.
- "A Student's Manual of Organic Chemistry," Thorpe and Whiteley (Longmans), 9s.
- "Volumetric Analysis," Hampshire (Churchill), 7s. 6d.

PHARMACEUTICAL LATIN AND PRESCRIPTION-READING

- "Latin Grammar of Pharmacy," Joseph Ince (Baillière), 7s. 6d.
- "Medical and Pharmaceutical Latin for Students of Medicine and Pharmacy," R. R. Bennett (Churchill), 10s. 6d.
- "Latin for Pharmaceutical Students," J. W. Cooper and A. C. McLaren (Pitman), 6s.

PHARMACOGNOSY

- "Text-book of Pharmacognosy," Greenish (Churchill), 25s.
- "Materia Medica," Southall, revised by E. W. Mann (Churchill), 12s. 6d.

PHARMACY

- "British Pharmacopœia," 1932 (Constable), 21s.
- "British Pharmaceutical Codex" (Pharmaceutical Society), 35s.
- "The Science and Practice of Pharmacy," R. R. Bennett and T. T. Cocking (Churchill), 36s. (2 vol.).
- "A Course in Practical Pharmacy," J. W. Cooper and F. N. Appleyard (Pitman), 7s. 6d.
- "Art of Dispensing" (C. & D. Office), 8s.
- "Forensic Pharmacy" (Pharmaceutical Society), 3s. 6d.
- "Dispensing for Pharmaceutical Students," Cooper and Dyer (Pitman), 7s. 6d.

PHYSICS

- "Manual of Physics," Crowther (Oxford University Press), 14s.
- "Principles of Physics," Smith (Arnold), 9s.

Trade Report

Where possible scales of prices of chemicals are given for bulk down to small quantities. Prices recorded for crude drugs, essential and fixed oils and coal tar products are for fair sized wholesale quantities. Qualities of chemicals, drugs, essential and fixed oils, etc., vary, and selected brands or grades would be at higher values.

28 Essex Street, W.C.2, August 16

WHILE many markets are still on the quiet side, as is usual at this time of the year, the reports to hand this week indicate that inquiry has been fairly satisfactory. The general tone is fully steady. International currency exchange rates may become erratic, with a possibility of more or less general inflation. In the pharmaceutical chemicals markets business has been on the quiet side. With a substantial reduction in the cost of the raw material the makers of Iodides have notified a corresponding cut in their scale of prices for the salts. At these new low levels the British salts should compete for home and export business with the Japanese. In the crude drugs markets ACONITE root is reported dearer. BALSAMS remain unchanged. BUCHU remains firm with a fair business passing. CHAMOMILES are still very firm and demand exceeds supply. GUM ACACIA continues firm. Shipment offers of LOBELIA HERB are difficult to obtain. SENEGA remains steady. TRAGACANTH continues very firm. In essential oils ANISE is firmer for shipment. BOIS DE ROSE is a firmer market. Java CIIRONELLA has a better tone. LAVENDER remains a very firm market. The general tone of this market is steady, with a moderate business passing. Fixed oils are a little better this week. COTTON, GROUNDNUT and PALM are all dearer and firm. CASTOR and GROUNDNUT are active items. PALM KERNEL, SOYA and CEYLON MILL COCONUT OIL are also quoted on a slightly higher scale. Other items are steady and unchanged.

Exchange Rates on London

THE following is a list of the chief Continental and other exchange rates at the opening on Thursday morning:—

Centre	Quoted	Par	August 16	Value of the £
Amsterdam ...	Fl. to £	12·107	7·42½	12½d
Berlin... .	Mks. to £	20·43	12·84	13½d
Brussels ...	Belgas to £	35	21·38	12½d
Copenhagen ...	Kr. to £	18·259	22·40	24½d
Lisbon ...	Esc. to £	110	110	20/0
Madrid ...	Ptas. to £	25·22½	36½	29/1½
Milan ...	Lire to £	92·46	58½	12½d
Montreal ...	Dol. to £	4·86½	4·95½	20/5d
New York ...	Dol. to £	nominal	5·00½	20/10½
Oslo ...	Kr. to £	18·159	19·90	21/11
Paris ...	Fr. to £	124·21	76½	12½d
Prague ...	Kr. to £	164·25	121½	13/8½
Stockholm ...	Kr. to £	18·159	19·40	21/4½
Warsaw ...	Zloty to £	43·38	26½	12½d
Zurich ...	Fr. to £	25·2215	15·41	12½d

Bank rate 2 per cent.

Pharmaceutical Chemicals, etc.

THE volume of business is reported to be rather less than average, as is usual at this time of the year. A very substantial reduction in iodides is recorded, which should enable makers to meet the recent cheap offers from Japan, both for home and export business. Barbitone continues firm. Phenacetin is irregular. There has been a better inquiry for methyl salicylate.

AMIDOL.—Meeting with occasional demand in small lots: 56 lb., 75. 3d.; 28 lb., 75. 6d.; 14 lb., 75. 11d. per lb., in 7-lb. tins. Wholesale distributors' prices for smaller quantities would be dearer.

AMIDOPYRIN.—Isolated cheap offers on spot; market is dull: crystals, five cwt., 18s. 9d.; two cwt., 19s. 1½d.; less than two cwt., 19s. 6d. per lb.; with powder, 2½d. per lb. extra.

AMMONIUM ICHTHOSULPHONATE.—Dealers are doing moderate business: one cwt., 1s. 6d., in 14-lb. tins; 1s. 7d., in 1-lb. tins; 1s. 11d., in 8-oz. tins; and 2s. 1d. per lb., in 4-oz tins.

ASPIRIN.—Convention prices are quoted; market rather quiet: home trade, ten cwt., 2s. 7d.; five cwt., 2s. 8d.; one cwt., 2s. 8½d.; 28 lb., 2s. 9d.; 14 lb., 2s. 10d.; 7 lb., 3s.; 4 lb., 3s. 2d.; 1 lb., 3s. 4d. per lb. Bulk packing free, net, carriage paid. Contracts: Over twelve months, minimum, one ton; over six months, less than one ton.

ASPIRIN (TABLETS).—The wholesale scale of prices is as follows: under 5,000, 3s. per 1,000; 5,000, 2s. 11d.; 10,000, 2s. 10d.; 25,000, 2s. 9d.; 50,000, 2s. 8d.; 75,000, 2s. 7d.; 100,000, 2s. 6d.; 250,000, 2s. 5d.; 500,000, 2s. 4d.; 1,000,000, 2s. 3d.;

over 1,000,000, 2s. 2d. per thousand tablets. For over one million a rebate of 1d. per 1,000 on 10 million tablets over 12 months. Wholesale distributors' prices for smaller quantities would be dearer.

BARBITONE.—The spot market is fully steady at about 14s. 9d. per lb. for small parcels. Forward quotations are firm: two cwt., 12s. 10d.; 56 lb., 13s. 2d.; smaller parcels, 13s. 6d. per lb., f.o.b., Continent.

BROMIDES.—Makers' and dealers' quoted prices steady; a little more inquiry: ammonium, not less than five cwt., 1s. 9d.; one cwt., 1s. 10d.; 28 lb., 2s. 1d.; smaller quantities, 2s. 5d. per lb.; potassium B.P. crystals and granular, not less than five cwt., 1s. 6d.; one cwt., 1s. 7d.; 28 lb., 1s. 10d.; smaller quantities, 2s. 2d. per lb.; sodium B.P., not less than five cwt., 1s. 8d.; one cwt., 1s. 9d.; 28 lb., 2s.; smaller quantities, 2s. 4d. per lb., without engagement. Special prices for larger quantities.

CAFFEINE.—British-made material is quoted as follows: one cwt., 7s. 6d.; 56 lb., 7s. 9d.; smaller quantities, 8s. Citrate, one cwt., 4s. 6d.; 56 lb., 4s. 9d.; smaller quantities, 5s. per lb. Dealers' prices for Continental material to come forward are unchanged, as follows: 250 lb., 6s. 6d.; 100 lb., 6s. 8½d.; 50 lb., 6s. 11d.; less than 50 lb., 7s. 1d. per lb. Citrate, 250 lb., 5s. 5d.; 100 lb., 5s. 5½d.; 50 lb., 5s. 7d.; less than 50 lb., 5s. 8½d. per lb., net, carriage paid on minimum 50-lb. lots. Packages from 5 lb. and upwards free.

CALCIUM LACTATE.—Business slow; market steady: spot, one cwt., 1s. 0½d.; 56 lb., 1s. 1½d.; 28 lb., 1s. 2½d.; smaller quantities, up to 1s. 6d. per lb.

CHLORAL HYDRATE.—British material commands the market: duty-paid crystals, in 14-lb. free containers, five cwt., 3s. 1d.; one cwt., 3s. 2d.; 28 lb., 3s. 3d.; 14 lb., 3s. 4½d. per lb.; 28-lb. jars, one penny per lb. extra.

CITRIC ACID (B.P. CRYSTALS).—Some fair demand, with keen prices for good bulk quantities. British makers quoting at 9d. per lb., less 5 per cent. discount, nominal and without engagement. Dealers are offering foreign material at very keen prices.

CREAM OF TARTAR.—Market is steady; business sustained. British 99 to 100 per cent. quoted at 8s. per cwt., less 2½ per cent. discount, nominal and without engagement. Dealers are quoting foreign material at competitive prices.

ETHER (METHYLATED).—Makers' prices are as follows: s.g. 0.750, 1s. 1½d.; 0.735, 1s. 2d.; 0.730, 1s. 2d.; 0.725, 1s. 4d. per lb., in w-quarts; 12 w-quarts, half-penny less and packed in drums or carboys 1d. less.

GUAIACOL CARBONATE.—Dealers' prices are maintained: two cwt., 9s. 10½d.; one cwt., 10s. 0½d.; less than one cwt., 10s. 2½d. per lb.

HYDROQUINONE.—A fair business in limited quantities is recorded. Makers' prices for one delivery and for contracts are unchanged.

IODIDES.—The recent fall in the market price of crude iodine has resulted in considerably reduced prices for iodides. The present prices are as follows: Potassium Iodide, B.P.—1 cwt., 5s.; 28 lb., 5s. 2d.; 14 lb., 5s. 4d.; 7 lb., 5s. 8d.; 4 lb., 6s. 2d.; smaller quantities, 6s. 8d. per lb. Sodium Iodide, B.P.—28 lb., 6s.; 14 lb., 6s. 2d.; 7 lb., 4 lb., 7s. 4d.; smaller quantities, 7s. 10d. per lb. Iodine Resub, B.P.—1 cwt., 6s. 1d.; 28 lb., 6s. 3d.; 14 lb., 6s. 5d.; 7 lb., 6s. 10d.; 4 lb., 7s. 4d.; smaller quantities, 8s. 4d. per lb. Iodoform, B.P.—28 lb., 8s. 8d.; 14 lb., 8s. 10d.; 7 lb., 9s. 5d.; 4 lb., 10s. 2d.; smaller quantities, 11s. 2d. per lb.; net, cash fourteen days. One cwt. may be assorted at respective minimum prices; 28 lb. may be assorted at respective 28-lb. prices. Jars extra, returnable; 28-lb. tins free, not returnable. Cases free for 1-cwt. lots. Carriage paid on any quantity. Contracts may be booked, with a reduction clause, for 1 cwt. and upwards for delivery over four months. Wholesale distributors' prices for smaller quantities would be dearer.

LACTIC ACID (B.P.).—A limited business, with prices quoted on a competitive basis: quantities in carboys, 1s. 4½d. to 1s. 5½d.; in winchesters and bottles, 1s. 6d. to 1s. 10d. per lb., as to quantity.

MERCURIALS.—Scales of prices for these salts are fully steady at former figures.

METHYL SALICYLATE (B.P.).—A very fair business is reported this week, market steady: ten cwt., 1s. 5d.; five cwt., 1s. 5½d.; one cwt., 1s. 6d.; less than one cwt., 1s. 7d.; small quantities in bottles, up to 2s. per lb.

METHYL SULPHONAL.—Market is dull, with dealers' sterling prices unchanged: two cwt., 17s. 6d.; one cwt., 17s. 11d.; 56 lb., 18s. 4d.; small parcels, 19s. 3d. per lb.

METOL.—A steady business being done; market quoted unchanged: 28 lb., 9s. 6d.; 14 lb., 9s. 9d. per lb., carriage paid. Wholesale distributors' prices for smaller quantities would be dearer.

PHENACETIN.—Business is on the quiet side and spot offers are still very keen: crystals or powder, five cwt., 3s. 4½d.; two cwt., 3s. 6d.; one cwt., 3s. 7½d.; 56 lb., 3s. 8½d.; smaller parcels, up to 4s. 3d. per lb.

PHENAZONE.—Although inquiry is of small importance, spot values are keeping fairly steady: crystals, five cwt., 10s. 7½d.; two cwt., 10s. 10d.; smaller quantities, up to 11s. 6d. per lb.; with powder, 2½d. per lb. extra.

PHENOLPHTHALEIN.—British makers are quoting as follows. There may be offers at slightly less: two cwt., 2s. 9d.; one cwt., 2s. 10d.; 28 lb., 3s.; 14 lb., 3s. 1d.; 7 lb., 3s. 2d.; smaller parcels, up to 3s. 6d. per lb.

PHENYL ETHYL BARBITURIC.—Spot business is limited; market about steady: quoted from 28s. 6d. to 29s. 6d. per lb., in 2-lb. bottles.

POTASSIUM PERMANGANATE (B.P.).—Dealers are doing a moderate business: quantities in two-cwt. drums, 9½d.; druggists' parcels, 9½d. to 11d. per lb., as to quantity.

POTASSIUM SULPHOGUAICOLATE.—Dealers report business is quiet, with their prices ranging from 6s. 2d. to 6s. 6d. per lb., as to quantity.

PYROGALLIC ACID.—Business continues on a fair scale; market steady: 56 lb., 7s. 9d.; 28 lb., 8s.; 14 lb., 8s. 6d.; 7 lb., 9s. 3d. per lb., in 7-lb. tins. Wholesale distributors' prices for smaller quantities would be dearer.

QUININE SALTS.—Sulphate, 2s.; bisulphate, 2s.; ethyl carbonate, 2s. 7½d.; salicylate, 2s. 8d.; phosphate, 3s. 1d.; hydrochloride, 2s. 6½d.; bilydrochloride, 2s. 9½d.; hydrobromide, 2s. 6½d.; bilydrobromide, 2s. 9½d.; valerenate, 3s. 5½d.; hypophosphite, 3s. 8½d.; alkaloid, 2s. 9½d. per oz., carriage paid in bulk quantities.

RESORCIN.—British material only available: crystals, one cwt., 4s. 11d.; 56 lb., 5s.; 28 lb., 5s. 1d.; 14 lb., 5s. 3d.; 7 lb., 5s. 6d.; less than 7 lb., 6s. per lb.

SALICYLIC ACID (B.P.).—A limited inquiry; quoted unchanged: five cwt., 1s. 7d.; one cwt., 1s. 7½d.; 28 lb., 1s. 8d.; 14 lb., 1s. 9d.; 7 lb., 1s. 11d.; 4 lb., 2s. 1d. per lb.

SALOL.—At current low prices the market is dull. Crystals, two cwt., 3s. 10d.; one cwt., 3s. 11½d.; 56 lb., 4s.; smaller parcels, up to 4s. 3d. per lb.

SANTONIN.—This market continues fully steady at the recent advances and full prices are being obtained for small parcels, in the region of £13 10s. per kilo. Inquiry indicates that there is now very little second-hand material about, and the first-hand sources, although not working under any agreement, are maintaining their quotations. An opinion expressed at one source was to the effect that a further recovery in value is not unlikely.

SODIUM BENZOATE (B.P.).—Business continues on a moderate scale at keen prices: spot, one cwt., 1s. 7d. and less for bulk lots; smaller parcels, up to 1s. 11d. per lb.

SODIUM DIETHYLBARBITURATE.—Makers' prices continue at the advance recorded last week: one cwt., 14s. 6d.; 28 lb., 15s.; 14 lb., 15s. 3d.; 7 lb., 15s. 6d.; 1 lb., 16s. 6d. per lb. Wholesale distributors' prices for smaller quantities would be dearer.

SODIUM SALICYLATE (B.P.).—The scale of prices is steady; a little inquiry: home trade, powder or crystals, five cwt., 1s. 8½d.; one cwt., 1s. 9d.; 28 lb., 2s.; 14 lb., 2s. 2d.; 7 lb., 2s. 3d.; 1 lb., 2s. 6d. per lb.

SULPHONAL.—Dealers' sterling prices are unchanged, isolated cheaper offers noted: crystals or powder, two cwt., 14s.; one cwt., 14s. 5d.; 56 lb., 14s. 7d.; smaller parcels, up to 15s. per lb.

TARTARIC ACID (B.P. CRYSTALS).—Market continues fairly busy. British material quoted at 1s. 9d. per lb., less 5 per cent. discount, nominal and without engagement. Dealers are offering foreign material at keen prices.

THYMOL.—The Convention prices for British and foreign are as follows: synthetic, fine white, two cwt., 5s. 7d.; one cwt., 5s. 9d.; 56 lb., 5s. 11½d.; 28 lb., 6s. 3½d.; less, 7s. per lb.; ex ajowan seed, one cwt., 8s. 3d.; 56 lb., 8s. 6d.; 28 lb., 9s.; 14 lb., 10s. per lb.

VANILLIN.—The market is about steady at the recently revised scale: ex guaiacol or clove oil, five cwt., 13s. 3d.; one cwt., 13s. 6d.; 56 lb., 13s. 9d.; less, 14s. per lb.

Crude Drugs, etc.

ACONITE ROOT.—Reported dearer at about 6s.

AGAR.—The shipment market remains quiet, with prices maintained: spot, Kobe No. 1, 1s. 11d.; No. 2, 1s. 9½d.; Yokohama No. 1, 1s. 10d. per lb.; shipment, Kobe No. 1, 1s. 8½d.; No. 2, 1s. 7½d.; Yokohama No. 1, 1s. 7½d., c.i.f.

ANTIMONY.—Chinese crude, spot, nominal; shipment, £21 10s., c.i.f.

BALSAMS.—*Tolu* remains quiet at about 2s.; *Canada* is quoted in the region of 2s. 1d.; *Capivi*, about 1s. 4d. per lb., spot.

BELLADONNA LEAVES.—The new crop is somewhat late; arrivals are not expected until September.

BELLADONNA ROOT.—Good-quality new arrivals quoted at about 6os. per cwt.

BUCHU.—This market continues very firm, with a fair business passing. Spot supplies of good green round leaves are at present short, and up to 1s. 4d. per lb. has been paid this week. The lower grades are also getting very scarce, and realising full prices.

CAMPHOR.—This market remains quiet and prices are unchanged: spot, slabs, 2s. 9d.; flowers, 2s. 1d.; tablets, 2s. 4½d. per lb.; shipment, slabs, 1s. 9½d.; flowers, 1s. 9½d.; tablets, 2s. 1d. per lb., c.i.f. English refined is still unchanged: flowers, one cwt., 3s. 1d.; 28 lb., 3s. 2d.; small lots, 3s. 3d. per lb. Transparent tablets, 4 oz., 8 oz., and 16 oz., 3s. 4d.; 1 oz. and 2 oz., 3s. 5d.; ½ oz., ¾ oz. and 4 oz., 3s. 6d. per lb.; special prices for contracts for quantities.

CASCARA SAGRADA.—A fair business is reported, and shipment offers are still difficult to obtain. For August-September shipment, 35s. per cwt., c.i.f., is wanted for new season's peel. The spot market remains unchanged, and one-year-old peel is still available at from 43s. to 46s. per cwt., as to seller.

CELERY SEEDS.—Recent prices are maintained for new crop deliveries.

CHAMOMILES.—The demand still exceeds the supply and prices remain very firm at about 230s. to 240s. per cwt. A few small parcels have arrived.

CLOVES.—This market remains steady: Zanzibar, spot, 5½d.; shipment, August-October, 5½d. per lb., c.i.f.

The landings of Zanzibar in London during the week ended August 11, were nil and the deliveries 222, leaving a stock of 3,814. From January 1 to date landings of Zanzibar have been 3,762 and the deliveries 2,467. Landings of Madagascar for the week ended August 11 were nil, and the deliveries nil, leaving a stock of 756. From January 1 to date, landings of Madagascar have been 296 and the deliveries 522 packages.

COCOA BUTTER.—Prime English is quoted at about 8½d. to 9d. per lb., as to quantity.

COCONUT (DESICCATED).—Market has been quiet and values about unchanged: spot, fine, 14s. 6d.; mediums, 14s. 6d.; shipment, halves, September-October, 13s. 10½d. per cwt., c.i.f.

COD-LIVER OIL.—The market is still rather quiet, and prices have eased slightly during the past week. At the lower prices it is expected that buyers will cover their autumn requirements. The Norwegian shippers, however, do not appear to be anxious sellers. Finest Norwegian non-freezing steam-refined medicinal oil for shipment is quoted at 88s. per barrel, c.i.f., London. Spot, in small lots, about 131s. per barrel, ex store, Newfoundland, finest non-freezing medicinal oil, 132s. per barrel, ex store. British, finest non-freezing medicinal oil, 125s. per barrel, c.i.f., London, duty free.

DERRIS ROOT.—Scarce on spot, at about 1s. 1d.; new crop, September-October, offered at 10d. per lb., c.i.f.

DIGITALIS LEAVES.—Very firm and dearer, forward price 95s. per cwt., c.i.f.

ERGOT.—Polish, new crop, offered at 1s. 5d. per lb., c.i.f. Spanish is offering at about 1s. 4d. per lb., c.i.f.

GELATIN.—Prices remain unchanged; demand steady. German, gold leaf, 2s. 4d.; silver leaf, 2s. 2d.; bronze leaf, 1s. 10d.; plain leaf, 1s. 8½d. per lb. French, gold leaf, 1s. 10d.; silver leaf, 1s. 8d.; bronze leaf, 1s. 6½d. per lb., in cwt. cases. British, No. 1, 10s.; No. 2, 7os. per cwt., in bags, carriage paid, less 2½ per cent. discount.

GUM ACACIA.—Continues very firm, with an active business passing. Kordofan cleaned sorts is firm at 37s. 6d. per cwt., c.i.f., for August-September shipment. Spot is available at 38s. per cwt. Bleached is fully steady at from 7os. to 75s. per cwt., according to quality.

HENNA LEAVES.—There is a demand on spot for green henna but none available until new crop arrivals in October.

IPECACUANHA.—This market is fully steady, with more general interest being taken by consumers. For genuine Matto Grosso from 4s. 6d. to 4s. 9d. per lb. is wanted on the spot, whilst we understand that several of the parcels that were afloat for this market have already been bought by consumers.

August 18, 1934

LOBELIA HERB.—Shipment offers are still difficult to obtain, and most of the offers at present on the market are from second-hand sellers. There is still a possibility of business in the neighbourhood of 1s. 3d. per lb., c.i.f., whilst spot can still be secured at from 1s. 6d. to 1s. 7d. per lb. Some holders are asking even higher prices.

MENTHOL.—The markets still remain quiet, prices steady: K/S brands, spot, 10s. 6d.; in bond, 9s. 6d.; shipment, July-August, 9s. 4½d.; October-December, 9s. 4½d. per lb., c.i.f. Japanese prices remain about 10s.

PEPPER.—The spot market is steady and forward positions a little dearer: Lampang, spot, 5½d.; shipment, August-October, 4½d.; October-December, 4½d. per lb., c.i.f. Tellicherry, spot, 5½d.; Alleppy, spot, 4½d. per lb. White Muntok, spot, 9½d.; shipment, August-October, 8½d.; October-December, 9½d.

PIMENTO.—This market remains quiet, with quoted values about unchanged: spot, 2½ d. per lb.; shipment, August-September, 22s. 3d. per cwt., c.i.f.

QUILLIA BARK.—New crop offered at £20 for November-December shipment.

SEEDS.—**ANISE.**—Spot, Spanish, 57s. 6d., duty paid; a parcel of Bulgarian now afloat, 45s. asked landed, duty paid. **CARAWAY.**—Market a little better. Dutch quoted at 34s. 6d., duty paid; 28s. 6d. quoted f.o.b. **CORIANDER.**—Spot, Morocco, now 16s., duty paid. The shipment price is dearer, 12s. 3d. now quoted, c.i.f., for August-September. **CUMIN.**—No Morocco on spot yet. For shipment 40s., c.i.f.; Malta, 50s., spot. For shipment the market is dearer, 50s., c.i.f., now quoted. **FENUGREEK.**—Morocco, spot, 12s. 3d., duty paid; shipment, 10s. 6d., c.i.f. **MUSTARD.**—English, 22s. 6d. to 31s., according to quality.

SENEGA.—Remains fully steady, with a fair demand on the spot at the lower level of prices. For shipment the values are unchanged at 1s. 1½d. to 1s. 2d. per lb., c.i.f., whilst spot is offering at from 1s. 4d. to 1s. 4½d. per lb.

Senna.—More interest is being shown this week. Good green Tinnevelly leaves, on spot, offered as follows: No. 1, 6d.; No. 2, 4d.; No. 3, 3½d. per lb. Some parcels of yellowish leaves offered at cheaper prices. Alexandrian, No. 1 grade, nominal; No. 2 pods moving off fairly freely up to 2s. 6d. per lb., duty paid. Little interest is being shown in cheaper qualities.

HELLAC.—The market is easier for shipment: spot, TN orange, 93s. to 98s.; fine orange, 125s. to 150s.; pure button, 125s. per cwt. For delivery, TN, August, 92s.; October, 97s.; for arrival, TN, August-September, 92s. per cwt., c.i.f.

SQUILL.—New crop white, small parcels arrived, 27s. 6d. per cwt., spot, duty paid.

TRAGACANTH.—This market continues very firm, and difficulty is being experienced by consumers in securing supplies of any grades between the values of £14 and £30 per cwt. The few lots that are still available are in second-hands, importers having cleared their stocks some time ago. It seems likely that during the next few weeks prices will further advance for these grades.

WAX (VARIOUS).—**BEES'.**—This market is still very firm, and it is expected that shippers will be asking higher prices. Spot supplies are still difficult to obtain. Benguella, spot, 105s. per cwt.; shipment, 89s. per cwt., c.i.f. Abyssinian, spot, 110s.; shipment, 87s. 6d. per cwt., c.i.f. Dar-es-Salaam, spot, 110s.; shipment, 97s. per cwt., c.i.f. Madagascar, spot, 102s. 6d.; shipment, 82s. 6d. per cwt., c.i.f. Conakry, no spot supplies; shipment, 87s. per cwt., c.i.f. CARNAUBA continues quite steady, with small offers from origin. Fatty grey, spot, 107s. 6d.; in bond, 98s.; afloat, 95s.; shipment, August-September, 95s. per cwt., c.i.f.; November-December shipments, 86s. to 88s. per cwt., c.i.f. Chalky grey, spot, 100s.; in bond, 92s. 6d.; shipment, 80s. per cwt., c.i.f. Primeira, spot, 106s.; in bond, 145s.; shipment, 145s. per cwt., c.i.f. November-December shipment, 128s. per cwt., c.i.f.

Essential Oils, etc.

BUSINESS in most products in this market has been on modest lines. Anise is a shade firmer forward. Bois de Rose is slightly firmer. Caraway steady. Cassia firmer for shipment. Ceylon citronella again firmer for shipment. Lavender remains very firm.

ANISE (STAR).—The forward market is a little firmer: spot, "Red Ship," in leads, 1s. 10½d.; in tins, 1s. 8½d.; in drums, 1s. 7½d.; shipment, in leads, 1s. 9½d.; in tins, 1s. 8d.; in drums, 1s. 7½d. per lb., c.i.f.

BERGAMOT.—Spot oil remains at about 5s. 6d. per lb.; shipment, about 5s. 4d. per lb., c.i.f.

BOIS DE ROSE.—This is a slightly firmer market: Brazilian, spot, about 4s. 9d. to 5s. per lb.; shipment, about 4s. 6d. per lb., c.i.f.

CAJUPUT.—Dull and unchanged: spot, 2s. to 2s. 3d.; green, 1s. 9½d. to 1s. 10d. per lb., as to quantity.

CARAWAY.—This market continues steady: Dutch rectified, five cwt., 8s. 5d.; one cwt., 8s. 9d.; smaller quantities, up to 9s. 4d. per lb.; crude, 5d. per lb. less.

CASSIA.—Rather firmer for shipment at about 3s. 2d., spot, quiet at about 3s. 10½d. per lb.

CINNAMON LEAF.—Business has been fair: Ceylon oil, spot, about 2s. 9d. to 3s. per lb., as to quantity.

CITRONELLA.—Ceylon is again firmer for shipment at 1s. 9½d. per lb., c.i.f.; spot, about 1s. 3½d. per lb. There is a rather better tone in the Java market: shipment, about 1s. 3d. per lb., c.i.f., for quantities; spot, in small lots, about 1s. 6d. to 1s. 7d. per lb.

CLOVE.—English-made B.P. is still quoted at about 3s. 6d. to 3s. 10d. per lb., as to quantity and source. Madagascar, spot, 3s. 4d. to 3s. 6d.; shipment, 2s. 5d. per lb., c.i.f.

EUCALYPTUS.—There is no change to report in this market. Empire oil, 70 to 75 per cent., 11½d. to 1s.; 80 to 85 per cent., 1s. to 1s. 1d. per lb., landed. Spanish, 70 to 75 per cent., 1s. 2d. per lb., c.i.f.

LAVENDER.—This market remains very firm: spot, finest genuine French, 38 to 40 per cent., 16s.; 50 to 52 per cent., 18s. 6d. per lb.

LEMON.—Remains unchanged, with moderate business passing: Sicilian hand-pressed, from 3s. 4d. to 3s. 8d., c.i.f., as to source. Spot, about 3s. 6d. to 3s. 9d. per lb. Californian, in large drums, 1s. 10½d.; in small drums, 1s. 11½d.

LEMONGRASS.—Firm and unchanged: shipment, 2s. 9½d. per lb., c.i.f.

PALMAROSA.—Remains a quiet market: spot, about 6s. per lb.

PEPPERMINT.—Japanese remains a quiet market: spot, about 3s. 11½d.; shipment, July-August, 3s. 10d.; October-December, 3s. 10d.; Japanese shippers are still quoting at about 4s. per lb., c.i.f. American natural oil, in drums, for shipment, about 3 dollars 65 cents per lb., c.i.f. Spot, about 1s. 65s. per lb.

SPEARMINT.—The spot market remains in the region of 9s. to 9s. 6d. per lb.; shipment, about 8s. 9d. per lb., c.i.f.

Fixed Oils, etc.

THE tone this week is a little better. Cotton, groundnut and palm are all dearer and firm. Palm kernel, soya and Ceylon mill coconut oil are also quoted on a slightly higher scale. Other items are steady and unchanged. Castor and groundnut are the most active items. Acid oils are about unchanged on the week; inquiry slow: coconut and/or palm kernel, 16s.; groundnut, 15s.; soya, 14s. per cwt., in barrels. CASTOR is steady and well maintained and there is a fair volume of business moving: pharmaceutical, 38s.; first pressings, 33s.; second pressings, 30s. (barrels); cases, £4 per ton extra, ex mill, Hull, in not less than one-ton lots; Bombay, 23s. (drums), c.i.f. COCONUT.—With the exception of an advance in the price of Ceylon mill, the position of the market shows no change: deodorised, 23s.; Ceylon mill, 13s. 1½d. (drums), c.i.f. COTTON is receiving a little more inquiry and the market is firm and quoted on a higher scale: deodorised, 20s. 9d.; common edible, 19s. 9d.; soapmaking, 18s. 6d.; crude, 15s. 6d. (barrels), spot. GROUNDNUT shows a further advance in prices; the market is firm and there is a fair demand: deodorised, 26s. 9d.; crude Oriental, 23s. (drums), c.i.f. LINSEED (RAW, NAKED).—The market is steady but quiet; values on spot are unchanged but forward positions show a slight increase: on spot, 22s.; August, 20s. 7½d.; September-December, 21s. 4½d.; January-April, 21s. per cwt. Boiled oil, spot, 24s. 6d. OLIVE is not in much demand; prices about steady: edible, in tins in cases, 70s. per case of ten gallons; B.P., 5s. per gallon, in 40-gallon barrels. PALM.—The tone of the market is firmer and quoted prices have advanced; hards are nominal; a fair inquiry is reported: Lagos, 12s. 9d., shipment; softs, 12s. 6d., shipment; mediums, 13s. 6d., shipment; hards, nominal; bleached, 14s. 3d. per cwt., spot. PALM KERNEL.—Quoted prices show a slight recovery but the volume of business remains small: deodorised, 22s. 6d.; crude, 16s. per cwt., spot. RAPE continues in poor demand; prices holding steady at recent levels: refined, 30s. 6d.; crude, 29s. 6d., spot. RESIN is quoted at about unchanged figures and the market is steady: B, 13s. 3d.; D, 13s. 3d.; F/G, 14s.; N, 14s. 3d.; W/G, 15s.; W/W, 15s. 3d. per cwt., ex wharf. SOYA is firm and a little dearer; business has been rather limited: deodorised, 24s. 6d.; crude, 20s. per cwt., in barrels, spot.

TURPENTINE, AMERICAN.—The market is fairly steady with the quoted price about level on the week at 42s. per cwt., in barrels. Total London stocks, 7,094 barrels.

Correspondence

Letters should be written on one side of the paper only. Correspondents may adopt an assumed name, but must in all cases furnish their real name and address to the Editor

July Examination Results

SIR.—The July Pharmaceutical Chemist Qualifying examination in Edinburgh showed five passes out of nine entrants, while in London forty entered and only fourteen passed. It would be interesting to be able to probe more deeply into the causes of this difference in results. In the Preliminary Scientific in Edinburgh 325 entered and 113 passed, while in London 543 entered and 139 passed. In April seventy-three passed out of 285 and in Edinburgh forty-two passed out of 168. In the July Chemist and Druggist Qualifying examination in London 473 entered and 241 passed; in Edinburgh 194 entered and 134 passed. In April the comparative figures were: London forty-nine entered, eleven passed; Edinburgh twenty-nine entered, fifteen passed. If examinations are sent to try us what should we say about results? And our educational system is becoming more and more complex.—Yours, etc.,

C. SMITH (13/8).

Should the Number of Pharmacies be Limited?

SIR.—“Cheshire’s” letter (*C. & D.*, August 11, p. 209) interests me. I have said the same thing over and over again for many years, not only in the columns of *THE CHEMIST AND DRUGGIST* but in those of lesser journals also. The registration of pharmacies will make the limitation of their number easier to accomplish than would otherwise be possible. And truly such a limitation is a consummation devoutly to be agitated for. The advantages to the individual pharmacist need no stressing. What may be overlooked is that the practice of pharmacy would be raised. Is it a good thing that redundant pharmacies have driven us all (or nearly all) into the by-ways of retailing, so that we are compelled to eke out our pitiful remunerations as pharmacists by selling cigarettes and chocolates and general small merchandise? It is not. The recent stiffening of the syllabus—a process which is likely to continue—is calculated to slow down the stream of “candidates for ordination” in pharmacy; though it would appear that such an anticipated consequence is being only partially realised. I have often wondered how the dental or medical professions would feel if they had to enlarge their incomes, as we have to, by undertaking jobs for which they were not trained. Imagine a dentist filling his window with tooth-brushes and then (by an easy transition) with toilet soaps, powders and creams, brushware of all kinds, shampoos and so forth! Why do we accept a similarly ludicrous situation lying down? Why, indeed, in every crisis are we so supine? When that question is answered (but not sooner) shall we learn how to crush the anomalies, abuses, injustices and exasperations that beset us. It is highly probable that a limitation of pharmacies would automatically shut down the flow of apprentices—for so many of them would be condemned to assistant’s rank for the whole of their careers. At the present time, it is natural (and commendable) that the average apprentice aspires to own a retail business—but the deplorable result is redundancy. Agitation on behalf of limitation strikes me as an object as well worth pursuing as any at the present time.

Yours cordially,
R. CECIL OWEN.

Chester.

Driving Away Trade

SIR.—The letter from “ex-Pill” entitled “Driving away Trade” (*C. & D.*, August 11, p. 209) shows the type of thing happening every hour of the day in some chemists’ shops. As a traveller or representative I witness this type of counter “salesmanship” all too frequently. But the choicest bit was told me a few days ago by a gentleman who is a real big business man (the term “gentleman” I use in the full meaning of the

word—a man can be in business and still be a gentleman, thank Heaven!). He was on holiday at one of our seaside resorts. Wanting some aspirin tablets he strolled into a (branch) company shop and asked the chemist (who appeared to be the manager) for a “small bottle of aspirin tablets,” quite prepared to take a bottle of twenty-five or fifty. The reply he received was the query “Penny or twopenny one?” Being rather amused, and not having seen a penny “aspirin,” he promptly said “Oh! two penny ones please,” paid his twopence, got his “aspirins” and that’s that! So it only goes to prove that all the good salesmen are not in the company shops. Ah, well! What a life in the drug trade! Small articles, small prices, small takings—but don’t let us say small minds. I note your correspondent signs himself “ex-Pill”—lucky chap! I’d be “Ex” too if I could; but I can’t find a “better ole.”

Yours faithfully,
OLE BILL (13/8).

Draft Poisons Rules

SIR.—Since when was it intended that Fellows and Associates of the Institute of Chemistry should be manufacturers of or supervise the manufacture of pharmaceutical preparations, and in particular those containing poison? After reading Paragraph 22 in Part VI of the provisional Poisons Rules, one wonders where on earth the representatives of pharmacy on the Poisons Board are trying to lead us. If this rule is allowed to be confirmed as it stands, it will in my opinion represent a most disgraceful piece of mismanagement on the part of our own representatives. One only has to look just a little further ahead to visualise hosts of people with a degree in science or chemistry “keeping open shop” and the qualified pharmacist, I suppose, selling patent medicines. The manufacture or supervision of the manufacture of poisonous pharmaceutical preparations should be strictly confined to those trained and qualified to do that particular work; and I can only feel amazement that the powers that be apparently propose handing this work over to members of another profession.

Yours faithfully,
PHARMACIST (14/8).

Qualified, But Not Registered

SIR.—In spite of the dislike of many pharmacists to become compulsory members of the Society and to pay the statutory fees, I cannot see many pharmacists already established in business refusing to pay either the membership or the shop registration fees, thus wiping themselves off the Register and becoming the proprietors of nondescript stores. You suggest (*C. & D.*, August 4, p. 175) that the provisions of the Act may breed a new species of “unqualified” holding the examiners’ certificate and yet not on the Register. If such people opened shops without selling or dispensing poisons, it would mean that the Act has defeated one of its objects, the elimination of the unqualified drug-store proprietor, by the creation of a new and more competent class of individuals who have served an apprenticeship and have successfully taken the courses of study and examinations for a chemist and druggist. What title such qualified yet unregistered chemists would adopt cannot even be guessed at until we know how far the clause in the Act which restricts the use of titles and descriptions extends. It is probable that from a money-making point of view a man could be just as successful unqualified as qualified. The N.H.I. dispensing has never been a profit-making part of the business, and I have often thought that one would be better without such things as this and the sale of poisons and would be able to devote more time to real business.—Yours faithfully,

REGISTERED (14/8).

Dispensing Notes & Difficulties

A Black Precipitate

SIR.—Can you give us any reason why a black precipitate occurs in the following mixture:—

Bismuth. sal.	...	...	...	gr. x.
Sodii brom.	...	...	...	gr. viiss.
P. tragac. co.	...	...	...	gr. j.
Glycerin	...	...	...	2j.
Elixir lactopept.	...	...	...	3ss.
Aq.	...	...	ad	3ss.

Yours faithfully,
C. W. S. (22/7).

[There is no incompatibility with a mixture containing bismuth salicylate and sodium bromide. The elixir lactopeptini would probably act on the pulv. tragacanth. co. Peptonising solutions contain sulphur compounds, and in the presence of a bismuth compound would darken the mixture. The sulphide would dissolve in any excess of acid, and the mixture would probably become white again. Elixir lactopept. was intended to be prescribed alone, but with the mixture known as pulv. tragacanth. comp. and bismuth some change is to be expected.]

Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics

Green Blister

T. F. (14/8) asks what is meant by green blister (veterinary), for which he has an order.

Name and Address Wanted

We are requested by a subscriber (13/8) to ask if any chemist in Birmingham or the district who has dispensed the following prescription within the past month will supply, through us, the name (and, if possible, address) of the patient:—Pot. brom. gr. v. vel. viiss.; syr. glycerophos. co. 5j.; liq. strych. m.j.; aq. chlorof. ad 3ss. [Mitte] 3viii.

Ordered but not Called for

"Retailer" (C. & D., July 21, p. 127) should ask for a deposit with the order, unless the customer is very well known. If the customer is genuinely desirous of obtaining the article he will be quite willing to leave a part of the price as a deposit. No other trader would obtain anything to a special order without some security. The person who asks for a certain line to be kept in stock and suddenly ceases to purchase it is more difficult to deal with.—*Duodecima* (30/7).

Changed Trading Conditions

"Emeritus" (C. & D., July 21, p. 127) says that in his first venture he lived on 10s. a week for two years, and that there must always be room for newcomers in our big cities. May I suggest that the conditions of trading and of property have altered considerably since he was in active business? In the new estates the builders who develop them put up two or three streets of dwelling houses with a row of shops on the main frontage. These shops are taken by traders (including a chemist), and when they are all disposed of the builders start on the next plot and repeat the operation, so that in a short while there are several of these blocks of shops each with its respective chemist; and when in the course of a year or two the estate is completed, one of the multiple concerns buys out someone in the best position, so that there are "redundant" pharmacies before the individual has had time to become well established. In the central portion of the town some shop falls empty and is advertised in the papers as suitable for a chemist; it is opened as yet another pharmacy between two existing ones, and we get more redundancy.—*Old Venturer* (31/7).

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for, and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

A. G. L. (26/88).—COLOURING FACE POWDERS.—In the wet process of colouring face powders, if the dyes used are either phloxine, safranine, chrysoidine, or any that requires only a small amount to tint the powder, the following procedure is adopted:

Phloxine	...	...	...	2j.
Alcohol	...	...	...	5j.
Water	...	...	...	3v.

Mix in a mortar, and when the dye is dissolved add talc gradually in small portions until a stiff paste is produced. For the above proportions about 1 lb. of talc would be required. If ochre, burnt sienna and similar pigments are used as the colouring agent, these should first be passed through a sieve of the same mesh as the face powder itself. The paste is then broken up and dried at a gentle heat. When dry it is reduced to powder and passed through a sieve before adding it to the base.

M. H. H. (23/98).—ACRIFLAVINE IN LIQUID PARAFFIN. Since acriflavine is insoluble in liquid paraffin it can only be dispensed in the form of a suspension. This is effected by dissolving the acriflavine in the smallest possible amount of water and then mixing this solution with a small amount of anhydrous wool fat; it is then mixed with the liquid paraffin.

C. E. P. (11/58).—GOLDFISH FUNGUS.—A goldfish fungus-removing preparation, a white granular powder, which we recently analysed, consisted of:—

Sodium chloride...	...	75 per cent.
Potassium bicarbonate	...	20 per cent.
Sodium perborate	...	5 per cent.

The first ingredient is a recognised fungus-removing agent, while the last-named would tend to remedy lack of oxygen in the water.

L. L. (10/78).—PURIFYING GUM CHICLE.—Gum chicle is purified from foreign matter by boiling with water and drying the gum. Mexican chicle gum is purified by the following process:—Break the gum up into small pieces, which are placed in a revolving screen-drum and washed in solution of sodium hydroxide to remove extraneous matter. The drum and contents are then lifted out of the revolving machine and placed in a bath of sodium acid phosphate to neutralise the alkalinity. The material is then washed with water until free from soluble salts, dried and powdered.

Retrospect of Fifty Years Ago

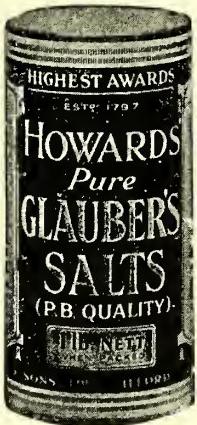
Reprinted from

"The Chemist and Druggist," August 15, 1884

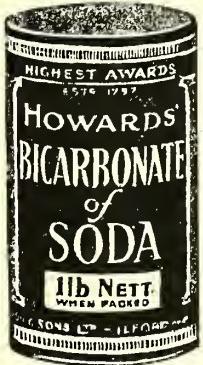
The Wholesale Drug Trade in 1820

Mr. Joseph Sidney Lescher . . . writes:—"About the year 1820 wholesale druggists in London sold many things besides drugs. . . . At that time, with postage to Bristol 8d., to Durham 10d., to Edinburgh 1s. 2½d., we had no price lists, and later on only lists with prices filled in by hand. Orders from chemists would consist principally of senna, Peruvian barks, Epsom salts and such drugs and chemicals, with tinctures; but cod-liver oil, glycerin, morphia, iodide of potash, concentrated infusions and decoctions, and quinine were unknown in order-sheets. It must have been about 1825 that . . . I called at the wholesale drug house of Davy & Co., and for the first time heard quinine talked about. . . . Citric acid was then about 8s. 6d. per lb., and oxalic acid 4s. 6d. per lb. Castor oil was imported in duppas or skins, made into shapes when wet, capable of holding from 40 to 50 lb. of oil. Ginger was then never sold bleached, this being one of the modern perfections. . . ."

HOWARDS'



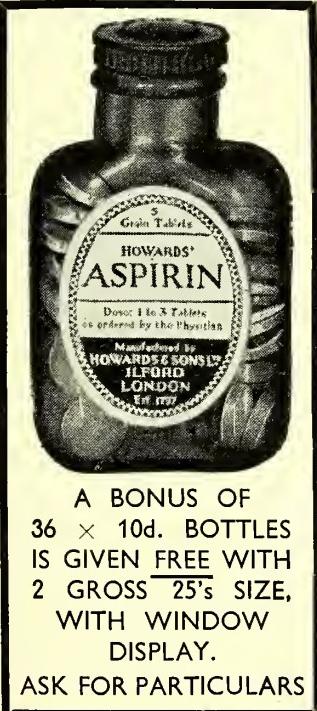
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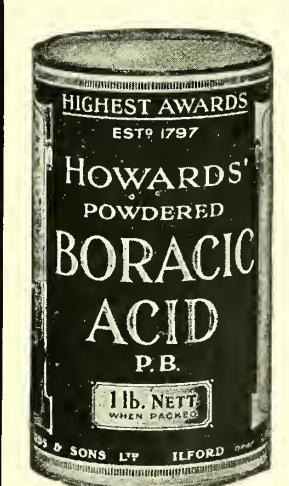


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Phosph., Mag. Carb. P.,
and Sodii Bicarb.



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Co.
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C. R. Harker, Stagg &
Morgan, Ltd.
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Ltd.
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Hirst, Brooke & Hirst

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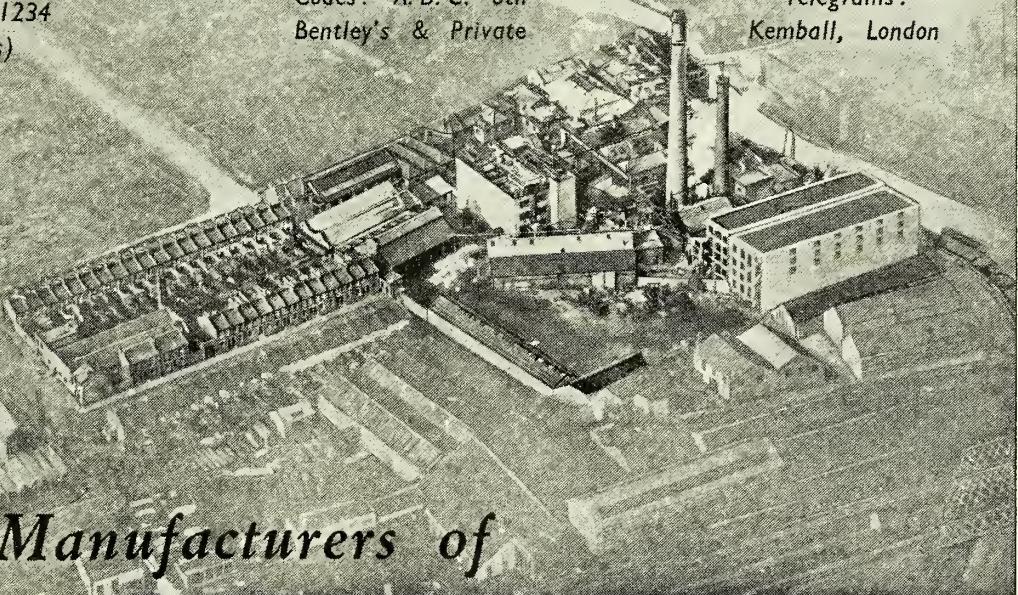
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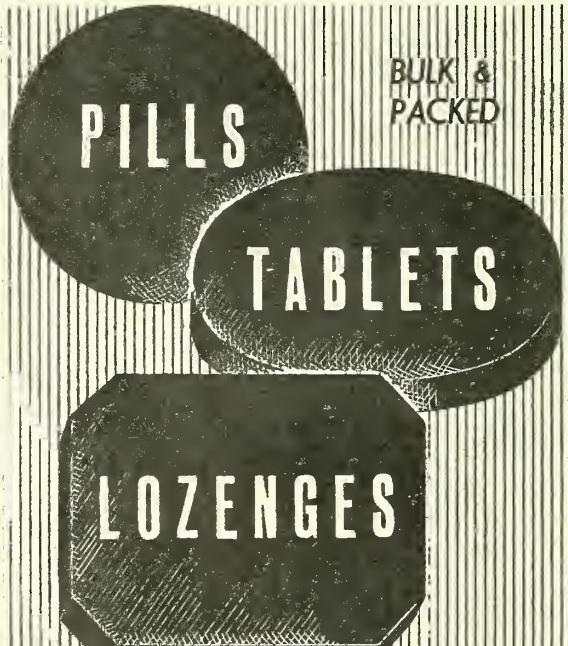
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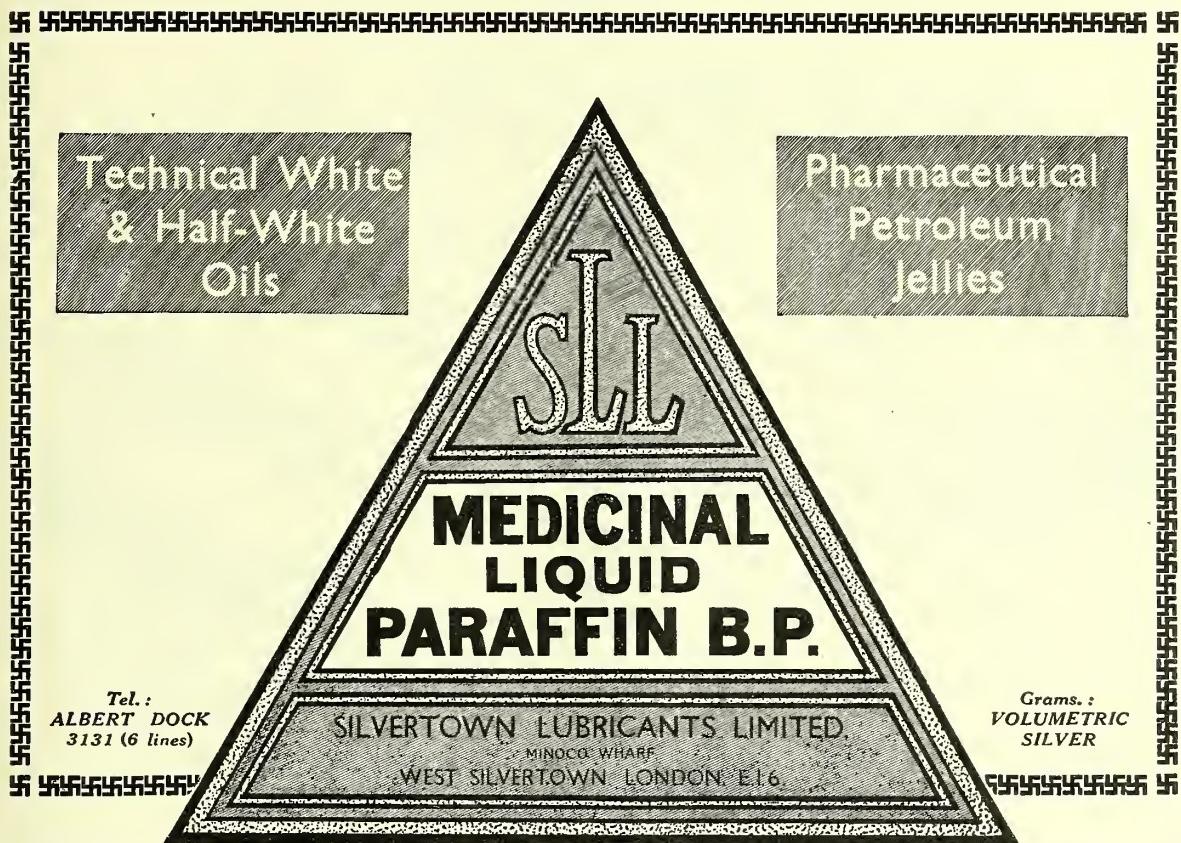
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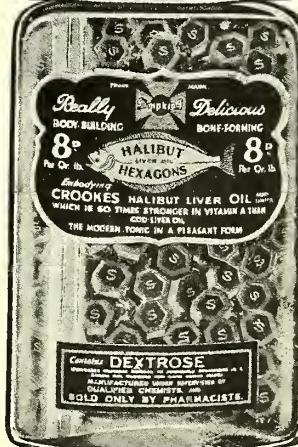
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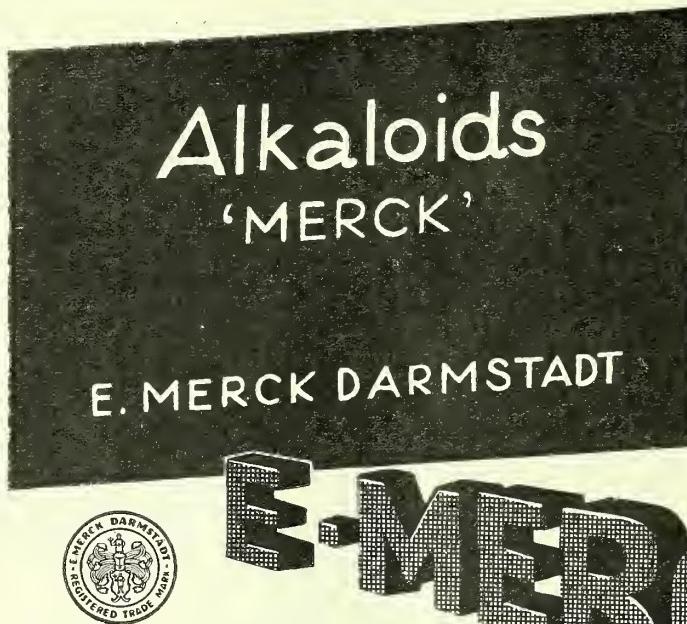
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**PITUITARY (posterior lobe)
EXTRACT—BOOTS**

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(10% Sodium Thiosulphate)

Prepared in our own Laboratories under strict scientific control, and, wherever necessary, biologically and clinically tested before issue.

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Cystex is no new or temporary success; many millions of packages have been sold all over the United States, Canada and South Africa in all of which countries it is recognised by the medical profession and the public alike as one of the most efficacious of all Kidney and Bladder remedies. In England the demand has been amazing—ever since Cystex was placed on the market we have been hard put to it to cope with the orders and repeat orders that come in by every post. Be prepared for your share in this success. Two sizes 3/- and 6/- less 25%.

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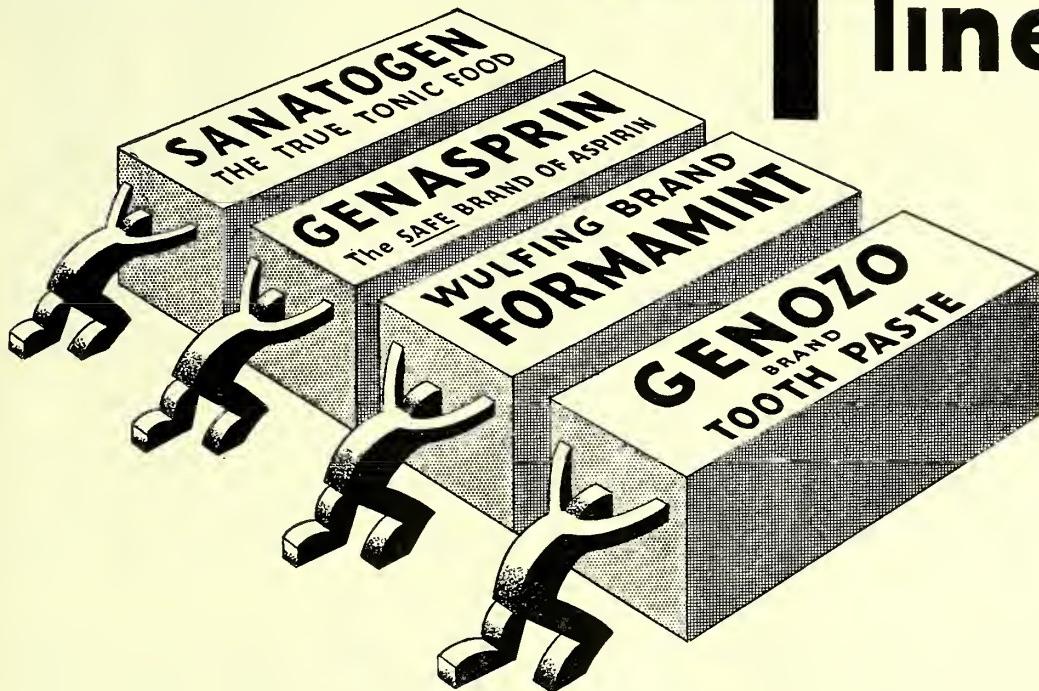
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Loughborough."

'SILF' is SELLING!

THE Sales of Silf Brand Obesity Tablets continue to go up and up! The public have faith in them . . . faith which is founded upon the supreme safety and effectiveness of this tried and tested remedy. AND NOW THE SUMMER "BOOM" IS ON! This is the Silf BIG Selling Season and you should replenish your stock AT ONCE.

Bigger and bigger advertising . . . more and more forceful advertisements in the National Press, Women's Papers, Periodicals and numerous other publications of proved selling power will continue to appear and to still further increase the already mounting sales.

WINDOW SHOW TERMS

In return for a fortnight's window display you are entitled to the following special bonus terms. For all orders of £2 and over we will send you 13 packets for every dozen you order. Orders on bonus terms may be sent to us with the name of your usual wholesaler through whom it will be charged.

Send your ORDER AT ONCE!

The SILF CO. LTD.
39, SHAFTESBURY AVENUE, LONDON, W.I.

WEIGHT CARDS

If you have a weighing machine we shall be pleased to supply you with attractive SILF weight cards FREE OF CHARGE.

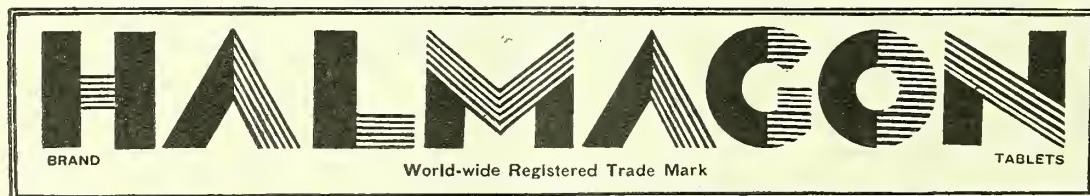
COUNTER WRAPPERS

Handy sized Silf Counter Wrappers will also be supplied Free of Charge. Mention them in your order.



The New Sales Attracting SHOWCARD

Our new showcard above, beautifully reproduced in Photogravure with gold lettering on a black background and a photographic figure, is a real sales magnet! It is now ready for distribution and will make a most distinctive Display which will link you up with our BIG ADVERTISING. Apply for one now and send your order along immediately.



PURE ORANGE WINE

A. MILLAR & CO., LTD., DUBLIN

(VINUM AURANTII B.P. 1914.) Prepared in strict accordance with the Formula of the British Pharmacopoeia.

Samples from Head Office, Thomas Street, DUBLIN, or London Office, 74 Great Tower Street, LONDON, E.C.3.

(Wholesale only)

HERBARAS CURES CONSTIPATION

There is a growing demand for natural treatment for Constipation of which the best example is HERBARAS Seeds of the Plantago type. Herbaras, which is being increasingly recommended by the medical and nursing profession, carries with it a very strong "repeat" business. The goodwill of every local order is handed to the local chemist.

P.A.T.A. Retail. 1/- 4 oz. 3/- 8 oz. 5/- 1 lb. 9/6 2 lbs.

SEND FOR A SPECIAL £1 PARCEL WITH WINDOW DISPLAY TERMS

JOHN W. LONGMAN, LTD., Overseas Produce Merchants, 489a Oxford St., LONDON, W.1

A BIG EVENT FOR CHEMISTS— BONUS ON 'ASPRO' 5's

'ASPRO' progress continues. Again during the past financial year all sales records have been broken. In no small measure this is due to the support and co-operation given to our publicity by chemists who have made continuous and practical use of our window displays and sales aids. Economic considerations have, in the past, prevented us from giving a bonus on 'ASPRO' 5's. Increased sales, however, have considerably reduced our overheads so we are now happily in a position to satisfy the repeated requests of our chemist friends for a bonus on the Unstamped 'ASPRO' 3d. size. We therefore announce that

**FROM AUGUST 20th ONWARDS A BONUS OF HALF A DOZEN
PACKETS OF 5's ON EACH HALF-GROSS ORDER WILL BE
GIVEN ON THE SAME TERMS AS OTHER SIZES.**

The chemists' profit on 5's will then be the same as it is at present on 10's. Order your 'ASPRO' now and take advantage of this valuable concession.

Write us for a window display, too, and show it continuously. It will connect you up with our record-breaking advertising campaign and bring customers into your shop just as though you had paid for the advertisements yourself.

HERE IS OUR CURRENT DISPLAY

**Show it
Continuously**



**Printed in
full colours**

Agents:
GOLLIN & CO. PTY. LTD.
('Aspro' Dept.), SLOUGH, Bucks.
Telephone : SLOUGH 608

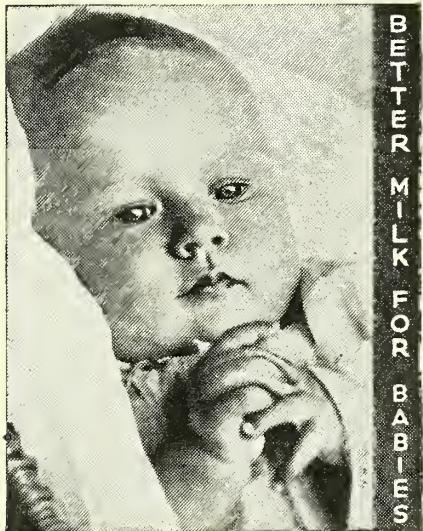
'ASPRO' consists of the purest Acetylsalicylic Acid that has ever been known to Medical Science, and its claims are based on its superiority.

Made by **ASPRO LTD.**, Slough, ENGLAND

No proprietary right is claimed in the method of manufacture or the formula.



Read how Doctors and Nurses are selling Lactogen for you



"Lactogen is most palatable and very easily digested, and is ideal for artificially fed infants. It is easily prepared and highly nutritious . . . The hermetically sealed tin must be a great asset in retaining the essential properties." Assistant Matron.

TESTIMONIAL NO. 1018

"I have used and prescribed Lactogen extensively and can positively state that not only have results been entirely satisfactory, but even spectacular. I am sure many babies under my care have literally been 'pulled out of the fire' by Lactogen. The air-tight method of packing is a great improvement." M.R.C.S. L.R.C.P. Lond.

TESTIMONIAL NO. 1012

With testimony like this to encourage you, your Lactogen sales this year should break all records. You need never hesitate to advise "Put Baby on Lactogen" when consulted by any young Mother. Babies thrive and do well on Lactogen. Build goodwill while you make more sales.

66 99

LACTOGEN

Lactogen—prepared by Nestlé's—is a modified dried milk for use in infant feeding.

2/9 PER TIN P.A.T.A.

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The Norwegian cod fisheries are prosecuted

in the far North in a cold and healthy climate. The liver oil of the cod, which is extracted a mere matter of hours after capture, is of all the foods we know the richest in vitamins. The great value of Norwegian Medicinal Cod Liver Oil will appear from the fact that medical men regard it as the most efficient weapon in the fight against enfeeblement and disease. Norwegian Medicinal Cod Liver Oil cures and prevents rickets, develops healthy teeth and a strong bone structure, and strengthens the mucous membrane of the respiratory organs.

Norwegian Medicinal Cod Liver Oil

world-renowned for



its high quality.

FROM SEPTEMBER 1st 1934

Kalzana

WILL BE SOLD DE-STAMPED

and instead of 25%

Your Profit will be increased to 33 $\frac{1}{3}$ %

The price of supplies bought ex wholesale houses will be:—

2/9 size 22/- per doz.	4/11 size 39/4 per doz.
-------------------------------	--------------------------------

(This new packing contains 20 per cent more tablets).

In fixing the foregoing prices, we have endeavoured to hold the balance fairly as between the customer, the chemist, and ourselves, i.e.

1. Your customer benefits by 20 per cent. more tablets, with no increase in price.
2. After allowing for the slight increase in the cost of production, you get half of the value of the patent medicine stamps — 33 $\frac{1}{3}$ per cent. profit, instead of 25 per cent.
3. The rest we retain, and it is our intention to use it during the coming season for advertising in the national dailies on an extensive scale.



PRESENT STOCK WILL BE OUT OF DATE AFTER AUGUST 31st

and should be returned with *patent medicine stamps intact* to the wholesale house from which it was purchased, or to us if bought direct. Credit in full will only be given on packets bearing the original patent medicine stamps.

GOODS RETURNED TO US FOR EXCHANGE MUST BE ADDRESSED TO OUR NEW FACTORY AND OFFICES:—

**THERAPEUTIC PRODUCTS LTD.,
AINTREE ROAD, PERIVALE, MIDDLESEX.**

IMPORTANT

Over 6,000 British Chemists have greatly increased their contraceptive rubber trade by stocking

DUREX

PURE LATEX PROTECTIVES

(guaranteed five years against deterioration)

You can do just the same, because we send you customers

WRITE FOR DETAILS & SAMPLES (GRATIS) TO
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Makers of Fine Latexware

FACTORY: HACKNEY, LONDON, E.9

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Non-Greasy, Odourless

QUININE PESSARIES



ORDER THROUGH ANY WHOLESALER
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15 Elmcourt Road, S.E.27

GRAIFIX — HYGIEN Reg. Pat.

first class hygienic rubber, antiseptic moist prepared, never gets dry. Especially made for tropical climates.

Samples and prices from
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Napier House, 24-27 High Holborn, LONDON, W.C.1

SUPPLIED TO CHEMISTS & DRUGGISTS ONLY
FINEST Safeguard QUALITY
(RUBBER GOODS)
FREE SAMPLES & PRICES ON APPLICATION
BURGE, WARREN & RIDLEY, LTD., 91-92, GREAT SAFFRON HILL,
LONDON E.C.1.

THE CHEMIST & DRUGGIST SUPPLEMENT

is an infallible help when you want to buy or sell a business, secure an agency, an assistant or a situation, or SELL SURPLUS STOCKS

The TARIFF is printed on the front cover of the COLOURED SUPPLEMENT

Address all inquiries to:—

The Publisher: THE CHEMIST AND DRUGGIST,
28 ESSEX STREET, LONDON, W.C.2

“SURCO”
RELIABLE
ELASTIC HOSIERY
SEAMED & SEAMLESS

For special garments to measure we maintain a 24 hour service.

:: BODY BELTS ::
TRUSSES :: SUNDRIES

Write for Catalogue.

SURGICAL HOSIERY CO., LTD.

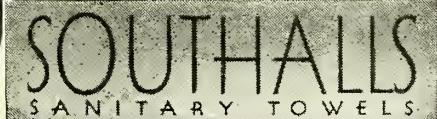
Russell Street :: NOTTINGHAM

Telephone No.: 75903. Telegrams: SURGICAL, NOTTM.

You need only stock the full range of Southalls Sanitary Towels to satisfy the needs of the vast majority of your customers.

- “ORIGINAL,” most popular.
- “CELTEX,” soluble.
- “K.” made entirely of absorbent cotton wool, with very soft cover.
- “COMPRESSED,” for Travelling.

Southall Bros. & Barclay Ltd., Birmingham



• Winning new customers for over 40 years!



From your Wholesale House, please.

A superior quality hygiene and a great favourite with women. Also SU-CAN Soluble, for easy disposal.

ROBINSON & SONS LTD., CHESTERFIELD & LONDON

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Established 1852.

Contractors to H.M. Government.

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CLINICAL
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ALL TYPES OF CLINICAL AND OTHER THERMOMETERS

Price List on Application.

94 HATTON GARDEN,
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Inventors of
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ABDOMINAL BELTS, TRUSSES (Spring and Elastic), SUSPENDERS, BRACES, DRUGGISTS' SUNDRIES.

PRICES ON APPLICATION

IT'S IMPOSSIBLE TO
IMPROVE ON THE BEST



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WHY BUY CHEAP UNBRANDED AND
UNRELIABLE PREVENTATIVES WHEN
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You can recommend MORFI with confidence — recent tests made by the medical Profession have proved MORFI to be the most reliable preventative on the market.

All MORFI Products are subject to strictest tests and made by a firm with over 20 years' experience — Fromms Act Rubber Works Ltd., the largest works of their kind in the world. They are Hot Vulcanised and will keep fresh for three years in any climate.

Recommended by Medical men and
Supplied only through Chemists & Druggists

Morfi Transp. 27/- per gross
Morfi Ivory 24/- ..

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ALDWYCH HOUSE, LONDON, W.C.2
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IODIDES

POTASSIUM

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ALL PRICES REDUCED FROM AUG. 9TH

We recommend buyers to enquire
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TELEGRAMS: "WHIFFEN, LONDON"
TELEPHONE: FULHAM 0037 (3 lines)

WHIFFEN & SONS, LTD.
ALDERSGATE CHEMICAL WORKS, FULHAM, LONDON, S.W.6

INCORPORATING GEO. ATKINSON
& COMPANY ESTABLISHED 1654

OPENING A PHARMACY

From London
11.1.34

I thank you for dispatching my order so promptly. One consignment arrived a day late, but that was the fault of the railway company. All the goods were received in good condition and I am very pleased with the various packed lines.

From Worcestershire
10.1.34

I should like to take this opportunity of expressing my entire satisfaction with your handling of my opening order. I am extremely pleased with the appearance of the goods, especially the "Purple Key" pack.

I appreciate the great help that Mr. Black has given me and the helpful atmosphere at Hanover Street when we came to Liverpool.

Hoping that this may only be the beginning of a mutually profitable business association.

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"A New Pharmacy"

AYRTON, SAUNDERS & CO., LTD.
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MALTED FOODS

*Special Foods Devised
"Own Name" Formulae
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BRITISH
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NO HIGHER
IN PRICE THAN
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The best of their kind.



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The CHEMIST AND DRUGGIST SUPPLEMENT

This Supplement is inserted in every copy of The Chemist & Druggist

28 ESSEX STREET, LONDON, W.C.2

AUGUST 18,
1934.

ADVERTISEMENT TARIFF

ALL ADVERTISEMENTS are PREPAID, so that remittance must accompany instructions in each case. If it be necessary to telephone or telegraph an urgent announcement this may be done, provided the money is telegraphed at the same time.

BUSINESSES WANTED and for DISPOSAL, PREMISES TO LET and FOR SALE, PREMISES WANTED, PARTNERSHIPS, GOODS for SALE and AGENCIES—6/- for 50 words; every additional 10 words or less, 6d. (Box No., 1/- extra.)

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THE CHEMIST & DRUGGIST, 28 Essex St., Strand, London, W.C.2

Telephone: Central 6565 (8 lines). Telegrams: "Chemicus, Estrand, London."

All advertisements intended for insertion in this Supplement

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must reach us
not later than

FIRST POST THURSDAY MORNING

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56 LUDGATE HILL, E.C.4

ESTABLISHED 1846

Telephone No.: CITY 2283

May be CONSULTED at their Offices on MATTERS of SALE, PURCHASE & VALUATION

We make no charge to purchasers, and invite intending buyers to communicate with us, stating their requirements

1.—**UPTON PARK (NEAR).**—Good Middle-Class Business; Kodak Agency and N.H.I.; in present hands 14 years; returns exceed £1,550; gross profit £536; single-fronted shop, nicely fitted and heavily stocked; excellent living accommodation with bathroom and every modern convenience; price for business £1,150 or near offer; price of property £900; no doubt about £800 could be raised on mortgage.

2.—**HAMPSTEAD (NEAR).**—Middle and High-Class Retail Business; turnover £2,250; certified accounts; stock and fixtures worth £1,500; modern living accommodation, 3 bedrooms, bathroom, etc.; rent £200; long lease; circumstances force an immediate sale; price £1,000.

3.—**CHADWELL HEATH (NEAR)** (Death Vacancy).—Middle-Class Cash Retail Business with large Panel and good sale for own proprietaries; run under management for several years; net profit to proprietor manager £500 to £600 per annum; spacious accommodation; long lease at £80 per annum; stock and fixtures worth about £1,000; price £1,550 or near offer.

4.—**HARROW.**—High-Class Retail and Dispensing Business; returns £40 to £45 per week; spacious double-fronted shop, handsomely fitted and heavily stocked; two flats over; vendor must leave for South Africa by early September; first reasonable offer accepted.

5.—**DAGENHAM (NEAR).**—Cash Retail Business with splendid dispensing connection; turnover this year approximately £3,000; flat over; new lease; further details to genuine buyers.

6.—**KENTON (NEAR).**—Cash Retail Business with side line; net profit £500 per annum; stock and fixtures worth about £625; flat over; price £1,025 or near offer.

7.—**KENSINGTON (NEAR)** (Death Vacancy).—Much-neglected Business for sale; takings under the management of a lady about £12 per week; very nice living accommodation; low rental; lowest price £350.

8.—**TOOTING (NEAR).**—General Retail Business with good Panel; established 35 years; returns over £1,500 per annum; nice shop; comfortable house; rent £78 per annum; long lease; price £1,100.

9.—**RAYNES PARK (NEAR).**—Good-Class Business with increasing turnover; returns approach £1,600 per annum; net profit £300; stock and fixtures worth £650 to £700; modern living accommodation; price £250 plus stock and fixtures at valuation.

10.—**VICTORIA.**—Good-Class Business with valuable appointment; net profit under personal supervision £500 to £600 per annum; chartered accountants' figures; mahogany fixtures; good, clean, modern stock; further details on application.

11.—**BOURNEMOUTH (NEAR).**—Chemist's Business with radio and gramophones; established 16 years; returns for year just completed £2,500; stock and fixtures worth £1,600; modern living accommodation; rent £160 per annum; long lease; price £2,000 or near offer.

12.—**NEWPORT (MON.).**—Cash Retail Business for disposal; established 35 years; spacious accommodation; lease at £98 per annum; returns £45 per week; low purchase price.

13.—**BIRMINGHAM (NEAR).**—Small Business for sale in good-class locality; net profit over £3 per week, increasing; stock and fixtures worth £200; price £350; vendor nearly 70 years of age.

14.—**SUNDERLAND (NEAR).**—Cash Drug Store with separate Wine and Spirit Business attached; net profit under the management of a lady, £700 per annum; price all at £1,200.

15.—**SOMERSET.**—Middle-Class Retail Business with all usual agencies; net profit approaches £300 per annum; stock and fixtures worth £500; very low rental; long lease; price for quick sale £600; must be sold.

16.—**LEATHERHEAD (NEAR).**—Good-Class Retail Business situate in excellent position; established 60 years; net profit about £300 per annum; stock and fixtures worth £700; excellent living accommodation, in very good state of repair; price, small premium, plus valuation.

17.—**SUSSEX COAST.**—Middle-Class Business with Prescribing and N.H.I., established 1803; returns £1,350; net profit £400; fixtures worth about £250; stock worth about £500; living accommodation; long lease at reasonable rental; price for lease and goodwill £300.

18.—**KENT COAST.**—Drug Store situate in exceptionally good position; returns under the management of a lady between £20 and £25 per week; scope; good living accommodation; open to offers; genuine reason for disposal.

19.—**WHITSTABLE (NEAR)** (Death Vacancy).—Much-neglected Business for disposal owing to sudden death of proprietor; returns about £1,000 per annum; good profits; living accommodation; garden about 60 ft. long; price for stock and fixtures £300, plus agreed premium for lease and goodwill.

20.—**WESTCLIFF (NEAR).**—Drug Store situate in excellent locality; returns present rate £30 per week; stock and fixtures worth £500; excellent modern living accommodation; 3 bedrooms and bathroom; nice garden and two garages; property could be purchased or leased; price of business alone £650 or near offer.

Chemists' Transfers, Valuations for Sale, Stocktaking & Probate

Special Terms for Income Tax Valuations and Preparation of Accounts by Qualified Accountants,

Ernest J. George & Co.

Chemists Valuers & Transfer Agents.

Bank Chambers, 329, High Holborn, London, W.C.1.
Telephone Nos. Holborn 1167 & 1278, (2 lines).
Tudor House, Walsall, Telephone, Walsall, 3774.

(C1) LONDON, S.W.—Main road business, with wine licence; turnover approximately £3,400 per annum; rent £140; price £2,700, including exceptionally heavy stock; definite and genuine scope for considerable further increase; full details upon application.

(C2) LONDON, N. (OUTER SUBURB).—Attractive modern pharmacy, with living accommodation, situated in good-class residential district; turnover approximately £1,800-£2,000 per annum; property also available; well recommended.

(C3) BIRMINGHAM.—Attractive modern pharmacy, situated in good-class residential area; turnover approximately £1,800 per annum; excellent living accommodation, with garden and garage; reasonable rental and purchase price.

(C4) LONDON, W. (OUTER SUBURB).—Progressive modern pharmacy, with good living accommodation; turnover approximately £1,800 per annum; rent £135; reasonable purchase price.

(C5) VICTORIA (NEAR).—Lock-up pharmacy, situated in busy thoroughfare; present returns about £18 per week, with abundant scope for development; reasonable purchase price, amounting to little more than the value of stock and fixtures (approximately £375).

(C6) WOOLWICH (NEAR).—Attractive modern pharmacy, with extensive window frontage, for disposal at a very low figure, owing to retirement; present returns upwards of £1,500 per annum; reasonable rental; price £625 (value of stock and fixtures only).

(C7) INLAND SPA RESORT.—Drug store with exceptional scope for development under qualified proprietorship; full wine licence; living accommodation; present returns approximately £25 per week; excellent position; low rental; price £700, representing approximate value of stock and fixtures only.

(C8) NORTHSANTS.—Exceptional opportunity to purchase modern progressive business, with good living accommodation, at a very reasonable figure, owing to special circumstances; turnover approximately £1,700 per annum; rent £104; lease 21 years; price £800, or offer.

(C9) SOUTH YORKSHIRE.—Pharmacy with living accommodation, situated in populous working-class district; turnover for 1933, £1,455, with abundant scope for extensive increase; population about 7,000; one other chemist only in opposition; rent £80; price £650; including stock £500; subject to valuation if necessary.

(C10) LONDON, W.—Old-established dispensing business for disposal owing to retirement; turnover approximately £1,950 per annum; with excellent scope for further increase; living accommodation; price by negotiation.

(C11) LONDON, N.—Attractive modern pharmacy, situated in busy shopping thoroughfare; present turnover approximately £20 per week; sub-post office on premises; excellent flat with all conveniences; abundant scope for increase; price £750 all-at.

(C12) EALING (NEAR).—Lock-up pharmacy, situated in populous residential area; turnover approximately £26 per week, and steadily increasing; rent £78 per annum; price £750; living accommodation near by if required.

(C13) SOMERSET.—Old-established business situated in small market town; turnover approximately £1,150 per annum; net profit £300; living accommodation; low rental; immediate sale required owing to genuine circumstances, and the first reasonable offer will be accepted.

(C14) LEICESTERSHIRE.—Good-class modern pharmacy, with up-to-date flat, including garage and garden; turnover approximately £2,200 per annum; net profit approximately £450; price £1,450.

(C15) NOTTS.—Old-established mixed business, situated in small market town; average turnover approximately £1,000 per annum, with excellent scope for further increase, as the business has been neglected owing to protracted ill-health; living accommodation; price by arrangement.

(C16) BRISTOL.—Recently established pharmacy, with up-to-date flat; excellent prospects; no near opposition; price to comprise value of stock and fixtures only, together with property.

(C17) LEEDS.—Established retail business, with five-roomed house above; turnover approximately £800 per annum, but excellent scope exists for substantial increase; price to comprise value of stock and fixtures only (approximately £450).

(C18) WHITCHAPEL (NEAR).—Established retail business, situated in busy main thoroughfare; turnover approximately £1,240 per annum; net profit £350; reasonable rental; £300 will purchase; stock (optional) in addition; well recommended to chemist desirous of purchasing an East End business.

BERDOE & FISH CHEMISTS' VALUERS AND TRANSFER AGENTS,

41 Argyle Square, KING'S CROSS, W.C.1

(One minute from St. Pancras and King's Cross Stations.)

1.—ESSEX COAST.—Good Middle-class Business, in very best position of popular resort; returns past year £2,600; plenty of scope; large pharmacy; beautifully fitted; stock worth about £1,000; price £1,750.

2.—SURREY.—Well-established Light Family Retail; no Panel; returns average £1,124; good profits; rent £32 10s., on lease; small house attached; double-fronted shop; well fitted and stocked; owner retiring; price £750.

3.—LIVERPOOL.—Old-established Cash Retail, in thickly populated suburb; returns £730; N.H.I. £180; rent £78 clear; good house; same hands 20 years; price £550.

4.—BOURNEMOUTH.—Middle-class Business, in growing district; returns average £15 weekly; attractive modern corner pharmacy; rent £65 clear; stock worth £400; price £550, or offer.

5.—SUSSEX COAST.—Nice-class Dispensing Business, in prominent and improving position; non-season trade; returns over £2,000; good profits; attractive pharmacy; fully stocked; price £1,750; personally inspected and recommended.

6.—SHEFFIELD.—Well-established Drug and Herbal Stores; selling through death; returns average £800; net profit about £200; low rent; house attached; fine chance for Chemist; price £325.

7.—LONDON, S.W.—Good-class Business, in prominent main-road position; returns last year over £2,200 under manager; scope for increase; good house; long lease; excellent stock; price £1,400 or offer.

8.—LONDON.—Wholesale Photographic, D. & P. Business, with profitable winter side-line; turnover under manager £2,700; plenty of scope; excellent premises; latest up-to-date plant; price £1,350, about value of plant and stock; references required.

9.—NORTH LONDON.—Middle-class Suburban Business, with good N.H.I.; returns average over £2,000, under manager; gross profits one-third; audited figures; rent £75; lease granted; good house; price £1,150, or near offer.

10.—LONDON, E.C.1.—Light Cash Retail, with good N.H.I.; main-road position; returns over £900; net profit £243; rent £75; new lease granted; owner has bought a country business and will accept £400 or near offer for quick sale.

11.—MIDDLESEX (few miles out).—Light Family Retail and Dispensing; returning nearly £2,000 under manager; scope for increase; handsome modern pharmacy, with nice flat over; price £1,200; personally recommended.

Estab. 1870.

Telephone: Terminus 3574.

EDUCATING THE PUBLIC

One of the most effective pieces of public propaganda on behalf of the chemist is the booklet

THE BUSINESS OF A CHEMIST AND DRUGGIST

It sets forth clearly and concisely the functions of a pharmacist, his training, the restrictions of his trading and other matters of especial interest to the public at the present time.

Supplies of these booklets at the rate of

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THE CHEMIST AND DRUGGIST
28 ESSEX ST., STRAND, LONDON, W.C.2

BRANCH OFFICES:

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**THE ASSOCIATION OF MANUFACTURING CHEMISTS,
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Invites pharmacists who appreciate personal service to place with him
matters of BUSINESS TRANSFER and VALUATIONS, MORTGAGE
requirements, STOCKTAKING, PARTNERSHIPS, and COMPANY
FLOTATION.
All communications treated in absolute confidence.

BUSINESSES FOR DISPOSAL.

6s. for 50 words or less; 6d. for every additional 10 words
or less, prepaid. (Box No., 1s. extra.)

ALDERSHOT.—Business for Disposal; turnover £1,350 per annum; good profits; 18-years lease; with good living accommodation; price £350, plus stock and fixtures at valuation. 130/18, Office of this Paper.

LEEDS.—Old-established Chemist and Optical Business in thickly populated district; at present under management and capable of considerable increase; audited accounts; excellent living accommodation; capital required £1,500; genuine reason for sale; further particulars on receipt of banker's references; no agents. 247/857, Office of this Paper.

LEEDS.—Old-established Retail, Photographic, N.H.I. (400 monthly); 3 years' average turnover £860; average net profit £208; busy main road, industrial; splendidly fitted shop; large window; scope for smart man; good opening for Optics; price, valuation about £375; kitchen, 3 rooms used for stock. Marsden, Valuer, 29 Oakwell Crescent, Leeds.

LONDON, N.—Middle-class Business for Disposal; returns £20 to £25 per week; N.H.I. scripts 400 per month; clean stock; good living accommodation; side entrance; 14 years' lease; low rent; doctor next door; £850; no triflers, please. Box 128/13, Office of this Paper.

LONDON, S.E.—Branch Business for Sale; well-fitted double-fronted lock-up shop in good position; neglected business, but capable of quick expansion under personal supervision; first reasonable offer accepted for quick sale. 129/22, Office of this Paper.

LONDON, S.E.—Old-established Middle-class Cash Retail Business; standing low rent; good stock (about £400); turnover: 3 years' average over £1,200; price £750 or near. Also Drug Store; S.W. district; takings average £1,000; opening for Qualified management; £700. 128/1, Office of this Paper.

LONDON or district by private Chemist, a medium-class Business with Kodak Agency; living accommodation preferred; price about £1,000; full particulars, with accountant's figures, in first letter. 129/43, Office of this Paper.

MANCHESTER.—For Sale, owing to bereavement, with or without premises, Chemist's Shop in busy main thoroughfare, in which fortune has been made; corner site; freehold; stock at valuation; there is a pavement frontage of 8 ft. 3 in. in depth available for extension. Write Chemist, 64 Hyde Grove, Manchester 13.

MANCHESTER.—Old-established Business in working-class district; big scope for N.H.I.; at present about 400 monthly; profits down for last year, at present about £300; a few profitable own lines; property, including good living accommodation (all electric) for sale or leased at reasonable rent; agreed sum for goodwill; stock and fixtures at valuation or reasonable offer. 124/3, Office of this Paper.

MANCHESTER Suburb, growing and thickly populated district; commanding position; corner double window; excellent opportunity and scope; bargain for quick sale; genuine reasons for disposal. P.C.B. 129/34, Office of this Paper.

ROTHERHAM (near).—Unopposed Cash Retail, Photographic, N.H.I. (900 monthly); established by vendor many years; 3 years' average turnover £1,357; average net profit £458; owner retiring; rare opportunity for smart man; easy rent; house if required; stock £500; all at £1,000; full particulars to genuine enquires with bankers' references. Marsden, Chemists' Valuer, 29 Oakwell Crescent, Leeds.

TAUNTON (near).—Country Retail Business must be sold at once; net profit £280 per annum; price £600, all at. Apply 247/861, Office of this Paper.

VICTORIA (near).—Fine opportunity for young Chemist; death of proprietor; established 35 years; no rent for 3 years; N.H.I. scripts over 400 monthly; goodwill and lease £100; stock and fixtures £300 or at valuation. G. H. Larcombe, Marijon, The Layne, Elmer Sands, Bognor Regis.

BRANCH Shop for Sale; West Midlands country town; good position; high-class trade and good profits; turnover over £2,000 per annum, capable of increase; inclusive price £1,500, or near offer. 246/841, Office of this Paper.

FIRST-CLASS Proprietary Product (Curative), with excellent distribution amongst Retail Chemists in 16 counties; retails at 6d. and 1s., with margin of 39s. per gross; splendid opportunity for Manufacturing or Wholesale Distributing Chemists; offers will be considered for entire business. Address Box 1532, Morison's Advertising Agency (Hull), Ltd., Hull.

FOR Immediate Disposal.—Old-established Family Business, with Photographic Agencies; living accommodation; scope Optics; takings £23 p.w.; good profits; low rental; well fitted and stocked; health reason for sale; business neglected; capable of considerable improvement in right hands; price £700 all at or nearest; part could remain; no agents. 129/36, Office of this Paper.

£85 FOR Quick Sale.—Nice compact Drug Stores, with Photography; scope for Optics; has been a Pharmacy with N.H.I.; fully equipped, stock, fixtures, electric light, sunblind; living accommodation; lease; suit young Qualified with small capital; fine prospects; genuine reasons for selling. 94 Torriano Avenue, N.W.5.

BUSINESSES WANTED.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid. (Box No., 1s. extra.)

BUSINESS wanted in country town Central Scotland, preferably with living accommodation, returning about £400 net profit; audited figures required; replies treated with strict confidence. 127/3, Office of this Paper.

ESTABLISHED country Business wanted to purchase privately or interest in one would be considered; Southern Counties preferred; property would be purchased if necessary. 129/1, Office of this Paper.

HAVE You a Good-class Business South of Birmingham, returning £3,000 per annum or more, which you are willing to sell? We have a client waiting for such a concern and is willing to give a good price; cash waiting. Write or telephone, Orridge & Co., 56 Ludgate Hill, London, E.C.4. City 2283.

LIMITED Company requires immediately 20 further Businesses; 3 years' certified accounts essential, and prices must be proportionate to present earnings; no restriction as to area. Intending vendors are invited to communicate, in strict confidence, with Ernest J. George & Co., 329 High Holborn, London, W.C.1.

REQUIRED by Private Chemist, a Thorough Genuine Business showing upwards of £500 per annum after paying every expense, including efficient staff; not particular as to locality; can put down £3,000 cash or more for the right business. Particulars in confidence to "X.Y.Z." 247/860, Office of this Paper.

PREMISES TO LET.

MANUFACTURING DISTRICT CLOSE TO THE CITY.—Unusually fine Factory Premises, having a total area of 22,100 sq. ft., on 6 light and lofty floors; central heating; electric lift; excellent loading facilities; to be let as a whole or in parts at low rentals; suitable for Manufacturing or Distributive Chemists. Apply Matthews & Goodman, 35 Bucklersbury, London, E.C.4. City 5627.

TEN SHOPS BEING ERECTED NEAR WARLINGHAM.—Good position for Chemist or Drug Stores; coming shopping centre; shop 26 by 18, with w.c. and lavatory basin at back; good flat over of 5 rooms, with separate entrance, also bath and separate w.c.; room for garage at rear; rent £80 first 3 years, inclusive of flat. Baines, "Greenhedges," Westerham Road, Limpsfield, Surrey.

APARTMENTS.

WHEN YOU COME TO LONDON STAY AT THE HAMPDEN RESIDENTIAL CLUB.

FOR GENTLEMEN, Hampden Street, N.W.1. Close to King's Cross and Euston. 300 bedrooms. 12s. 6d. to 25s. per week, including baths, attendance and boot cleaning. All meals à la carte in dining room. Moderate tariff. Large Club Rooms, Library, Billiards Room, Reading Room and Study for Students. Illustrated Prospectus from Secretary. Euston 2244/5.

TENDERS INVITED.

COUNTY COUNCIL OF MIDDLESEX.

PUBLIC ASSISTANCE DEPARTMENT.

Tenders for:—Drugs (six months).

Dressing, Surgical Appliances, Surgical Instruments (six months). X-Ray. Light, Pathological and Radium Requisites (six months).

THE County Council of Middlesex invite tenders for the supply of the above goods or materials in each case for the period stated from October 1, 1934, to their several Public Assistance Hospitals, Institutions, Children's Homes, Offices, etc.

Forms of tender (upon which only tenders will be received) and conditions of contract may be obtained on application to the Director of Public Assistance, 10 Great George Street, Westminster, S.W.1, accompanied by a stamped addressed foolscap envelope.

Sealed tenders marked "Tender for —" must be delivered on or before 11 a.m. on Tuesday, September 4, 1934, addressed to the "Clerk of the Middlesex County Council, Guildhall, Westminster, S.W.1."

The Council do not bind themselves to accept the lowest or any tender, and reserve the right to accept any tender or part only. (P.A./H/101).

E. S. W. HART,
Clerk to the County Council.

Guildhall, Westminster.
August, 1934.

AGENCIES.

SCOTLAND.—Agent required by old-established firm who have a large connection in Scotland for Perfumes, Perfume Sprays, Razor Blades, Packed Goods, &c.; no objection to additional non-competitive line; commission only. Write, giving full particulars of experience, &c., to Box 247/855, Office of this Paper.

FIRM of Manufacturers with good connection Wholesalers, Chemists, Druggists and Stores would consider additional lines on Agency terms. Full particulars in confidence, 129/15, Office of this Paper.

VALUABLE Agency for reliable, industrious Representative to book orders (to be passed through Wholesalers) for quick-selling Proprietary stocked by all Chemists; must be recommended and have proved connection on territory applied for; liberal commission paid weekly. Territories vacant: Edinburgh and Glasgow; Newcastle, Sunderland and Middlesbrough; Birmingham and District; West Riding of Yorkshire; Bristol and Cardiff. Representatives must be prepared to call upon every Chemist in territory applied for. Kindly state territory covered, with all particulars, to Box 129/10, Office of this Paper.

WELL-KNOWN Exporting House in Calcutta invites enquiries from Manufacturers desirous of extending business in this territory, on agency or consignment basis. Mohamed Rafi, 12 Colootola Street, Calcutta.

FINANCIAL.

FOR DISPOSAL.—900 Shares of £1 each in Company Manufacturing Gelatine Capsules, &c.; genuine opportunity; reasonable price accepted immediate sale. Principals only, please write in first instance to 129/33, Office of this Paper.

SITUATIONS OPEN.

RETAIL (HOME).

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid. (Box No., 1s. extra.)

BRIGHTON.—Pharmacist requires a competent J.C.Q.O. Optician to take charge of Optical Department and to assist in pharmacy; good address and personality desirable; permanency to suitable applicant. Edgar Jones, Ph.C., 94 Preston Drove, Brighton.

BRISTOL.—Wanted, Qualified Assistant, capable of managing small branch under supervision; please give full particulars; state salary, which must be moderate, and enclose photo if possible. 130/7, Office of this Paper.

CARDIFF.—Smart young Qualified and Unqualified Assistants required (former capable of taking charge), of good appearance and address; good Window-dressers and obliging Salesmen; permanency to the right men. Robinson, 134 Whitchurch Road, Cardiff.

CHESHIRE.—Qualified Manager required for good-class business; must be well recommended. Give particulars of age, experience, salary, &c., enclose photo if possible, to 130/19, Office of this Paper.

DORSET.—Vacancy September 10 for a first-class Assistant with undeniably references (age 25-30); applicants must be good Dispensers, able to talk with customers, courteous, willing, honest and able to dress Windows artistically; salary according to experience. Full particulars and photograph, Clark, Dorchester.

EAST LONDON.—Young Qualified Assistant required; accurate Dispenser; apply, giving age, experience and salary required, which must be moderate; photo if possible. 129/38, Office of this Paper.

MANCHESTER.—Qualified Branch Manager and also Unqualified Assistant required; both must be capable and reliable; working-class district; state salary and experience. Statim, 129/41, Office of this Paper.

NORFOLK.—Qualified Branch Manager for Country Business, with N.H.I. and Photographic; salary and commission, with house and good garden at shop. References and full particulars to B. V. Jermyn, Chemist, East Harling, Norwich.

OXFORD.—Unqualified Junior Assistant (Male), who has passed Part I, required for first-class Dispensing Business; must be absolutely reliable and well recommended. Send photo and full particulars of experience in first application to Druce & Co., High Street, Oxford.

STAFFORD.—Well-trained Junior Unqualified Assistant of good appearance and address; give full particulars of age, experience and salary required; replies not acknowledged in 7 days respectfully declined. J. & H. A. Averill, Market Square, Stafford.

WHITSTABLE, KENT.—Wanted at once, Qualified Lady or Gentleman Superintendent for small business; state age, salary required (which must be moderate) and references; easy position; assistance given. Apply Mr. Fuelling, Graystone House, Tankerton Road, Tankerton, Kent.

ASSISTANT (about 22), Unqualified, wanted early September; must be good Dispenser and Counter, Photography. Full particulars, salary, &c., Moxham, Chemist, Portswood, Southampton.

ASSISTANT wanted in good-class Retail business in Yorkshire city; young, energetic man with ability in Photographic, Counter, Salesmanship preferred. Apply P.C.B. 130/15, Office of this Paper.

COMPETENT Junior required at once for Good-class Country Business; full particulars in first letter, please; photo if possible. Buswell, Lutterworth.

IMMEDIATE.—A competent Assistant required for 2 or 3 weeks. Apply, stating age, salary required, full details of previous experience, &c., D. T. Evans, Ltd., Chemists and Opticians, Margate.

JUNIOR Assistant (Male) required early September; Dispensing, Counter, &c. Write or call, Matthews, 230 High Road, Leyton, E.10.

JUNIOR Assistant, Unqualified, wanted for about six weeks from August 27 for good-class Dispensing business; all particulars in first letter, letters unanswered in 3 days respectfully declined. Reply H. Reynolds, 15 West Avenue, Worthing.

JUNIOR Unqualified Assistant wanted. Apply, with all particulars, to S. Edwards & Son, Ltd., Chemists, Farncombe, Surrey.

JUNIOR Unqualified Male Assistant of smart appearance required September 3; must be energetic, capable and a good Window-dresser; seaside experience preferred; state full particulars in letter. Blacklock & Co., The Square, Bournemouth.

LADY Assistant, Unqualified (age 25-30); smart appearance, pleasant; quick and accurate Dispenser; Hall qualification preferred; experienced in Salesmanship, especially of Toilet Preparations; South Coast; replies, giving full particulars and references, salary expected; permanency for right lady; photo essential. 130/14, Office of this Paper.

PHOTOGRAPHS, TESTIMONIALS, &c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTIMONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 100 to 150 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

LO^{CUM}, Qualified, required from August 27 to September 8; state age, terms and all particulars. Bawns' Pharmacy, Ltd., Devizes, Wilts.

LO^{CUM}, Qualified; September 3 to 15; not required to take charge; state outdoor salary; applicant could make it partial holiday if terms suitable. Smithsons, 11 Preston Road, Brighton.

LO^{CUM}, Qualified, September 17 to 28. Particulars to Sparrow, Chemist, Bridgnorth.

LO^{CUM}, Qualified, wanted at once, for London district, for 3 weeks; small middle-class business. Apply 129/50, Office of this Paper.

LO^{CUM}, Qualified, young, either sex, wanted for three weeks commencing September 3 next. Zeals Pharmacy, Ltd., Chemists, 17 St. James Street, Weston-super-Mare.

LO^{CUM}.—Unqualified Male Assistant (about 23-30) required for first three weeks of September. Reply, stating salary, experience, enclosing two recent references and photo, The Manager, The Oxford Drug Co., Ltd., Cornmarket Street, Oxford.

MANAGER, Qualified, for branch situate Manor Park, Ilford; to commence August 27; state full particulars as to age, experience and salary required. Bewells', Ltd., 19/21 Pitfield Street, N.1.

MANAGER, Qualified Pharmacist and Qualified Optician, wanted for business on South Coast. Write, with full particulars of experience, 129/45, Office of this Paper.

MANAGER required immediately, S.W. London; permanent; state salary and experience; applicant must be in a position to invest £150/£200 in first mortgage debentures at 7 per cent. (returnable). Also Young Qualified Chemist wanted; salary must be moderate (without investment). 130/9, Office of this Paper.

M.P.S.—OPTICIAN, with own equipment, required to help in Dispensing; modern premises; nominal rent; splendid opportunity. Also M.P.S., Lady or Gentleman, for part-time day; light duties; low commencing salary plus commission; Stamford Hill district. Write BM/ETRE, London, W.C.1.

QUALIFIED Assistant for Limited Company; Manchester residential suburb; light duties; easy hours; small salary, only increasing if business expands; send details experience, copies only references, and lowest salary entertained; applications not answered in 5 days declined with thanks. 129/30, Office of this Paper.

QUALIFIED Assistant wanted, about September 10, for Surrey; permanency. Write, giving full particulars of training, experience and stating salary required, 129/32, Office of this Paper.

QUALIFIED Assistant wanted, London, N.E.; capable of taking charge. Apply, stating age and salary required, to 127/9, Office of this Paper.

QUALIFIED Assistant wanted, male or female, for a week's Locum work, from September 3 to 8. Apply, stating terms, to W. G. Davies, 393 Commercial Road, Stepney, E.1.

QUALIFIED Assistants required, from August 18, for Locum work; also for permanency in N.W.1 District; must be well recommended and real workers; capable of taking charge. Apply personally to Fairfax, 59 Marchmont Street, Russell Square, W.C.1.

QUALIFIED for branch, single-handed; a worker's opportunity; moderate salary to commence, but permanent terms depend on what returns for 3 months; state in first letter salary, references, &c. T. Emery, 8 High Street, Ealing, W.5.

QUALIFIED Lady for branch business, S.W. district. Apply 129/16, Office of this Paper.

QUALIFIED Lady or Gentleman Dispenser required for new Pharmacy; good prospects for advancement. Write or call, stating qualifications, experience (if any), salary required, to G. Anderson, 226 Woodhouse Road, N.12. Hillside 2658.

QUALIFIED Lady or Gent required at once for branch; reliable Dispenser and Salesman; state full particulars, salary, &c., 351 High Road, Ilford.

QUALIFIED Man (not over 35) wanted immediately for branch business; salary £4 per week and commission; apply with usual particulars; no reply within 7 days, declined with thanks. Foster, 41 Stroud Green Road, Finsbury Park, N.

REQUIRED in 6 to 8 weeks' time, Qualified Manager for good-class Pharmacy in Chelsea area; must be tactful, courteous and personable; permanent position for right man; good salary, plus commission and bonus. 246/849, Office of this Paper.

SMART Junior Unqualified Assistant or Improver wanted immediately; must be good Dispenser and Counterman; suitable for student. State age, experience and salary required, or apply personally, Chemist, 85 New Park Road, Brixton Hill, S.W.2.

SMART Qualified Lady required for N. Staffs district; knowledge of Toilets essential. Full particulars, experience, salary required in first letter to Box 128/9, Office of this Paper.

UNQUALIFIED Assistant (not over 30), Male or Female, for London; knowledge of Dispensing and Display; energetic, courteous, capable; permanency. 247/859, Office of this Paper.

WANTED, at once, Young Qualified Manager. Apply personally Friday afternoon at 207 Munster Road, Fulham.

WANTED for August 24, Assistant Lady Dispenser for Doctor's Surgery; must hold the Apothecaries' Hall certificate. Apply, with three recent testimonials, to B. B. & C., 2 Union Place, Wisbech.

WANTED.—M.P.S.; permanency if suitable; no Sunday duty; Lincolnshire; terms moderate. 247/858, Office of this Paper.

WANTED.—Qualified Assistant; light duties; an elderly man would suit. Write, stating particulars, wages, &c., which must be moderate, to 129/2, Office of this Paper.

WANTED, Unqualified Lady Assistant for Drug and Optical Department. State age, wages and full particulars of experience not later than Saturday, August 23, 1934, to General Manager, Brighouse District Industrial Society, Ltd.

YOUNG Qualified Assistant (male); capable taking charge small branch; South Coast. Particulars, experience, age, photo and salary required to Box 128/8, Office of this Paper.

WHOLESALE.

A SPLENDID opportunity occurs for Salesman with good connections; several territories vacant; a new firm, but with the right lines and well in demand; commission basis to commence with, but good men will grow with the firm. 127/4, Office of this Paper.

A N Opportunity occurs for an ambitious and competent Office Manager (under 45) to take complete control of Offices of high-class Beauty and Toilet Products Manufacturers; must be able to organise offices on modern lines; good salary; permanent position. Reply, stating age, experience and salary required, 247/852, Office of this Paper.

ONE of the largest and oldest-established companies in the Proprietary Medicine business requires a Copywriter; he must understand the advertising of proprietary lines; experience and some medical knowledge an advantage; good salary and prospects to right man. Write fully, giving details of past experience and salary required, to 247/853, Office of this Paper.

PROGRESSIVE Manufacturing Chemists require expert for Cosmetics; give full particulars of previous experience, salary, and if possible samples of creams and powders capable of producing. 126/5, Office of this Paper.

REPRESENTATIVE required by Scottish House doing Drugs and Chemists' Packed Lines; for North of England and part of Midlands; to extend present connection; preferably one who would work on salary and commission. Apply, giving full particulars of experience, &c., to 128/7, Office of this Paper.

REQUIRED.—First-class Tablet Compressor; London area. Write, stating experience and salary required, to 247/862, Office of this Paper.

THE British Agents for "Grafix Hygen" and "Grafix Transparent" Rubber Products require Representatives with good connection amongst Retail Chemists, to handle the above branded packs as additional lines on liberal commission basis; territories available: London, North-West England and North Wales, East and North Riding and Eastern England, Scotland. 130/2, Office of this Paper.

TRAVELLERS, with good connection amongst Chemists, to carry an additional side-line, attractively displayed on cards; good profit to customer, with bonus; high commission to trustworthy men. The S.O.S. Grip Co., 146 Higham Road, Rushden, Northants.

TWO Salesmen, Yorks, Midlands, Lancs-Ches., North Wales, to sell well-known Toiletries to Chemists, Hairdressers and Stores; remunerative extra line; generous commission. Box R 3, Lee & Nightingale, Liverpool.

WANTED IMMEDIATELY.—Three Men calling on Chemists and Hairdressers; to carry good Toilet range; areas: Lancs and West, Yorks and East, South Coast. References and particulars to Exe Valley Toilet Products, Exeter.

COLONIAL, INDIAN AND FOREIGN.

INDIA.—Messrs. Bathgate & Co., Wholesale and Retail Chemists, Calcutta, require a Qualified Assistant with experience since qualifying; age not over 25; single; 4 years' agreement; passage paid out and home; salary, which starts from date of sailing, first year Rupees 400 monthly (about £30), second year Rupees 425 (about £31 17s. 6d.), third year Rupees 450 (about £33 15s.), fourth year Rupees 475 (about £35 12s. 6d.). Write, giving particulars, to Box ZE683, c/o Deacon's Advertising Agency, St. Mary Axe, E.C.3.

REPRESENTATIVE, to call upon Doctors, required for Egypt by important firm of English Manufacturers; pharmaceutical qualification and good knowledge of French essential. Write, with full particulars, to 247/854, Office of this Paper.

SITUATIONS WANTED.

RETAIL (HOME).

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid. (Box No., 1s. extra.)

A.A.A.A. —QUALIFIED (24), tall; 3 years' excellent City of London experience; also West End and provincial; quick Counterman, Window-dresser and Dispenser; also much Prescribing experience; excellent references. Ivinson, 6 Shawfield Street, S.W.3.

A.A.A.A. —QUALIFIED (27), thoroughly experienced, highest references, good appearance, desires change. 129/8, Office of this Paper.

A.A.A.A. —ASSISTANT (M.P.S.N.I.) (25); good appearance; 10 years' experience; good Window-dresser, Photography, Counter Prescribing, competent Dispenser, keen Salesman; would take up Optics later; practical Chiropodist; go anywhere; permanent position only; free one month. Write "Chemist," Kingsley Villa, Athol Park, Port Erin, I.O.M.

A.A. —ASSISTANT requires situation, locum or permanency; London or Coast; 5 years' experience Dispensing (private and Insurance), Counter, Photographic; disengaged; references "K." 47 Aldbourne Road, W.12.

A. PERMANENT Progressive Post required; West of England preferred, but not essential; age 26, married, Qualified, tall and of good address; exceptionally wide Dispensing, Counter and Photographic experience; interview please; disengaged shortly. D. W. Wren, M.P.S., 6 Wharf Road, Bournemouth West.

A. QUALIFIED Manager requires position in London or Suburbs as Branch Manager; 20 years' experience. Davies, 109 Alexandra Drive, Surbiton, Surrey.

A CT AND ANSWER AT ONCE.—Assistant (40), Unqualified, exceptional experience all branches Pharmacy, will open Sight-Testing (own equipment and fair stock frames, &c.) for good permanency; excellent references. A. C. R., 39 Raglan Road, Plumstead, S.E.18.

A DVERTISER, Qualified Pharmacy and Optics (F.B.O.A.); now managing large Provincial Pharmacy; disengaged late in September or earlier by arrangement; mature experience. Spes, 130/22, Office of this Paper.

A'S Locum, Manager or Assistant, "not registered"; over 30 years' London experience; whole or part time; Counter, Book-keeper, Dispensing and worker; London only. "Prescriber," 130 Scott-Ellis Gardens, N.W.8.

A SSISTANT; competent Dispenser and Salesman; 25 years' experience; single; active; Unqualified. Aspirin, 61 Fartown Green Road, Fartown, Huddersfield.

A SSISTANT; married; excellent all-round experience; Specialist in Photography, Toilet, Window-dressing; free now; Unqualified. Apply 128/18, Office of this Paper.

A SSISTANT, Unqualified (age 34), seeks berth in or near S.W. London; good Counterman, Windows and N.H.I.; moderate salary. T., 62 Queensmill Road, Fulham Palace Road, S.W.6.

A SSISTANT, Unqualified (28), single, desires change; competent and experienced Dispenser, with sound knowledge of Photography, Windows, Counter; well recommended. Assistant, 114 Broadwater Road, London, N.17.

A SSISTANT (21); Part I; tall; thoroughly experienced Retail trade; Photography, Window-dressing, Counter, Dispensing. 130/20, Office of this Paper.

A SSISTANT (26) seeks situation; 9 years' good all-round experience Manufacturing, Wets, Drys, Patents; able to take charge; energetic. Box 129/17, Office of this Paper.

A SSISTANT (21); tall; Prelim. Scientific; Dispensing and Counter experience. Roberts, c/o Jones, Chemist, Bala, N. Wales.

B IRMINGHAM or Midlands Preferred.—Engagement desired; B thoroughly experienced; well recommended; locum work undertaken. Hanley, 180 Lozells Road, Birmingham.

C HEMIST, with good Retail experience, desires position with Wholesale house. 128/19, Office of this Paper.

C HEMIST (25), Qualified, tall, seeks progressive post; preferably managerial; London; experienced in all branches; free in one month. 129/53, Office of this Paper.

C HEMIST'S Son (21), recently completed Apprenticeship with good-class pharmacist, desires situation as Junior; S.W. England. 131/1, Office of this Paper.

DISPENSER-CHAUFFEUSE-SECRETARY desires post with Doctor, London preferred; aged 25; widow; well recommended; keen worker. P.C.B. 130/6, Office of this Paper.

EVENINGS in West London only.—University graduate, Qualified Pharmacist, desires evening appointment, from 6 p.m.; pa experience in Hospital and Retail; Salesmanship ability and personality above the average. "Alpha," 35 Crowhurst Road, S.W.1.

GENTLEMAN (28), F.S.M.C. (eligible J.C.Q.O.), with excellent Pharmaceutical experience, desires post as Optician, also assisting in Pharmacy; or would introduce Optics; part equipment if necessary. 129/31, Office of this Paper.

K EEN Young Qualified (27); 6 years present firm, with management experience; good worker; adaptable; available on month notice; wants permanent post in clean, healthy locality; Lancashire or North Wales Coast; outdoors; experience in sub P.C. 129/12, Office of this Paper.

L ADY Assistant (24), Hall, desires position in South Wales or West England (preferred); experienced and conscientious. 128/24, Office of this Paper.

L ADY Assistant (22), Referred Part I, seeks post; 3 years experience Counter Dispensing, Window-dressing. Watson Hollingbourne, Kent.

L ADY Assistant (26), Unqualified, desires post in London; 8 years experience Counter, Dispensing, Window-dressing. Burrell 15 Cliford Road, Finchley, N.3.

L ADY Dispenser (Hall), Bookkeeper, 10 years' excellent general experience, requires post, Doctor or Chemist; S.W. London preferred. 131/2, Office of this Paper.

L ADY Dispenser, Hall certificate, seeks Locum; any period to October 1; Kingston, S.W. London. "Retreat," Vine Road East Molesey.

L ADY Dispenser (Hall) would give her services for few weeks to regain experience; Hospital or Dispensary preferred; London only. Swale, 44 Hereford Road, Bayswater, W.2.

L ADY M.P.S. requires post, part time or locum; good general experience; free September 10. Chemist, 5 Randolph Gardens N.W.6.

L OCUM or permanency, Unqualified (45); Dispensing, Counter; excellent references; free August 20 to September 29. A. B. 2 Walham Grove, Fulham, S.W.6.

L OCUM, Pharmacist; elderly, active, reliable, abstainer; strictly moderate salary; London. Apply Summers, 98 Greyhound Lane, Streatham Common, S.W.16.

L OCUM.—Unqualified, but qualified by experience; highest credentials; West End, middle- and poor-class experience; a worker, not a shirker; terms moderate; free September 23. Franklin, 12 Westgate Terrace, London, S.W.10.

L ONDON AND DISTRICT.—Pharmacist (26); Manager or Assistant; 3 years' experience as Qualified; free October 1; permanency. 129/21, Office of this Paper.

M ANAGER (30), Qualified; married; 3 years' managerial experience in last post; intelligent, good Counter manner and Organiser, Buying; all-round experience. Randell, 141 Atkins Road, S.W.12.

M ANAGERESS (27), Toilet Department, contemplating change, desires similar post; experienced Buyer; excellent references. 130/4, Office of this Paper.

M.P.**S.**, F.B.O.A., desires Managership, permanency; married; 15 years managing; Photographic, Windows, Business Builder, Prescriber; living accommodation; excellent references. 126/1, Office of this Paper.

M.P.**S.** (38), real live business man, good appearance and personality (own business 12 years), seeks position of responsibility, Retail or Wholesale. Apply 128/15, Office of this Paper.

O PTICIAN (33), Qualified, registered J.C.Q.O., seeks responsible position; wide experience in Pharmacy; would consider opening up Sight-Testing Department (own equipment); West London or Middlesex preferred. 129/39, Office of this Paper.

P ART time, evenings and Saturdays, in South-West London or West End, required by Student (24) for qualifying examination; excellent Retail and Dispensing experience during 7 years. 129/3, Office of this Paper.

NAMES AND ADDRESSES.

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensue. Strict attention to this detail will be appreciated.

LIMITED COMPANY REGISTRATION.

The Best Services obtainable are those offered by us. Companies Registered, Inclusive of Capital Duty, Fee & Deed Stamps, Registration Fee, Supplying Memorandum & Articles of Association (settled by eminent Counsel), and Share Certificates FROM THE LOW FIGURE OF £10 17s. 6d.

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Post Samples and Full Particulars to:—

W. SPEAKE, 68 Yew Tree Road, WALTON, LIVERPOOL

PERMANENCY or Locum (38); Unqualified; experienced every branch; competent Dispenser, Counter, Window-dresser; disengaged; excellent references. "H.", Northcote, Goodwins Road, King's Lynn.

PHARMACEUTICAL Chemist (23), North Country, desires engagement with Manufacturing and/or Wholesale House; Hospital and Retail experience; free immediately. 129/44, Office of this Paper.

D.H.C., LONDON (22), desires position, preferably with a reputable Wholesale firm; excellent credentials. Loyle, 11 Waterside, Slaithwaite, Huddersfield.

QUALIFIED Assistant (24); free October 1; excellent experience in Counter, Window-dressing and Dispensing; Square-trained. 29/47, Office of this Paper.

QUALIFIED Assistant (23); permanency; tall; used to heavy N.H.I., practical D. & P., efficient Stock-keeper; not afraid of hard work; excellent references. Horsfall, 4 Stoodley View, Hebden Bridge.

QUALIFIED (25), with good all-round experience, seeks situation; London or suburbs; permanency. 129/37, Office of this Paper.

QUALIFIED, 30 years' English and Continental first-class experience, requires Managership; married; London or near preferred. 129/40, Office of this Paper.

RELIABLE, experienced, Unqualified Assistant (41); well recommended by high-standard firms; alive to business. "Sound," 1 Disraeli Road, Putney, S.W.15.

SUNDERLAND, Newcastle.—Part time, evenings, holidays, odd days; Doctors, Dispensing or Hospital. "Dispenser," 18 Appleby Terrace, Roker, Sunderland.

UNQUALIFIED (22); thoroughly experienced Retail trade; Dispensing, Counter, Window-dressing; excellent references. "Gentian," 423 North Woolwich Road, Silvertown, E.16.

WHOLESALE.

A. —**REPRESENTATIVE**, some experience in Drug and Toilet trade, desires position with house of repute; connection London and Southern Counties; salary, expenses and commission terms. H. A. F., 1 Stamford Way, Streatham, S.W.16.

Accomplished Medical Interviewer and skilled Propagandist, with wide experience and a unique knowledge of Medical men, their requirements and susceptibilities, desires re-engagement. "Zealous," 21 Gloucester Place, Brighton.

ANALYTICAL Chemist, B.Sc. (22), requires post; wide experience all kinds of General and Commercial Analysis. P.C.B. 130/14, Office of this Paper.

CHEMIST; executive ability; 17 years' experience in Large- and Small-scale Manufacture of Pharmaceuticals and Cosmetics; production of competitive lines; capable of developing formulae; knowledge of Chemical Machinery. 129/29, Office of this Paper.

COSTS.—Right costs mean right profits. Advertiser (32), many years' experience this work, covering wide range Packed Goods and allied lines, seeks change; desires progressive appointment where his experience can be utilised; salary from 90s.; would make excellent Manager (or Assistant Manager) Branch Works, Depot or similar post. 130/15, Office of this Paper.

QUALIFIED Pharmacist, with sound knowledge of South African conditions and requirements in all branches of the Drug Trade, open for engagement as Representative in South Africa for British Continental firm; immediate personal interview possible. Write advertiser, 247/856, Office of this Paper.

CLEAR OUT your Old or Damaged Stock of Photo Goods.

Why keep them any longer? Turn them into CASH. I GIVE BEST PRICES for Old Films (damaged, fogged or expired dates); Packet Papers, Cards (any sizes), Old Photo Goods or Cameras. Bromide Papers, Plates (all sizes, all makes). Send any goods in the photo line. I buy all, good or bad. Cash per return. A good price for all Cameras. Send them along.

S. E. HACKETT, 23 July Road, Liverpool

REPRESENTATIVE of proved ability, old and well-established connection with Chemists, South-Western Counties, seeks position with Manufacturer. 128/10, Office of this Paper.

REPRESENTATIVE, 10 years' personal connection Stores, Chemists, Hairdressers, West End and Suburbs, desires appointment; disengaged; salary, commission and expenses. P., 76 Oxford Terrace, W.2.

FOR SALE.

CASH Register; snip; "National"; perfect condition; prints all sales; adds all cash; counts customers; smart finish. Write R. Moore, 24 Ayleck Street, King's Cross, N.1.

CHEMIST'S solid Cuban Mahogany Wall-cases (2), sloping Cases, and Mirror Cupboards, under, Mirror-fronted Cupboard over 94 drawers (glass knobs and labels), and 7 Lockers, Counter, glass, pillar-fronted, Cupboards and Poison Cupboard, Window Screen, Dispensing Screen, marble top, Deck, 4 Carboys, Specie Jar and Lid. X., 45 Westgate, Peterborough.

OFFERS wanted for Fittings, Shop Rounds, etc., from small Pharmacy, London. Apply 129/11, Office of this Paper.

MISCELLANEOUS.

CHEMISTS' FITTINGS.—We hold an immense stock of Drug Fittings, Dispensing Screens, Glass-fronted Counters, Perfumery Cases, Nests of Drawers, Wall Cases, Silent Salesmen, Upright and Flat Counter Cases, Plate Glass Counters, Cash Tills, Display Stands and Glass Shelves, &c., at competitive prices. F. MAUND & E. BERG (SHOWCASES), LTD., Shop Fitters and Shop Front Builders, 175/9 Old Street, London, E.C.1.

FOR Chemist's Shop Fittings send to **GEORGE COOK**, The Working Shopfront. Drug Fittings, Wall Cases, Serving Counters, Dispensing Screens, All-glass Counters, Counter Drawers. Rough sketches free. Lowest prices. Send your requirements to 27 Macclesfield Street, E.C.1. 'Phone: Clerkenwell 5371.

SHOPFITTINGS.—Second-hand, reconditioned and repolished. All sizes and shapes. Half to-day's prices. Sketches and full particulars on receipt of detailed requirements. Call or write, PHILIP JOSEPHS & SONS, LTD., 90/92 St. John Street, Clerkenwell, E.C.1. Telephone: Clerkenwell 2191. "Pharmacy Fitters for over a Century."

COMPLETE CHEMIST FITTINGS at any price you wish to pay. We have erected in our showroom a Complete Chemist's Shop with Metal Shop Front, Window Backs, Correct Window Lighting Signs and Modern Interior Fittings. Apply for Lists. D. MATTHEWS & SON, LTD., "The Liverpool Shop Fitters," 14 and 16 Manchester Street, Liverpool. Est. 1848.

EXCHANGE COLUMN.**FOR DISPOSAL.**

OPTICAL equipment for disposal, including sundries and illuminated chart, reverse type, cheap. Foster, 38 Camomile Street, Bishopsgate, E.C.3.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule.

NOW is the opportune time to inform the trade as to your resources for producing and supplying goods suitable for



Christmas Trade

At Home and Overseas wholesale, export and retail dealers are on the look out for attractive lines in Perfumery and Toilet Soaps, Boudoir Accessories in silver and glassware and other fancy articles and Druggists' Sundries. These sell freely before and during the festive season.

In the issue of
THE CHEMIST AND DRUGGIST
 to be published on
September 22, 1934

there will be a special Supplement produced in colour, which advertisers can use advantageously for attractive announcements of their products, utilising their usual half-tone or line blocks. A section will likewise be available for those who prefer reproduction in photogravure.

WRITE AT ONCE FOR ALL DETAILS OF SPACE AVAILABLE, ETC., TO:

The Publisher,
THE CHEMIST AND DRUGGIST, 28 ESSEX STREET, LONDON, W.C.2

Phone: Central 6565 (8 lines).

Grams: "Chemicus, Strand, London."

BRANCH OFFICES:

49 County Buildings, Cannon Street, MANCHESTER.
 155 Avenue de Wagram, PARIS, XVII.

19 Waterloo Street, GLASGOW.
 MELBOURNE and SYDNEY (Australia)

54 Foster's Buildings, High Street, SHEFFIELD.
 AUCKLAND (New Zealand)

